

ROJECT 5126200

AECENED

MAY - 3 1994

PERMIT SECTION

RFI WORK PLAN - PHASE I

PHIBRO-TECH, INC. JOLIET, ILLINOIS

RECEIVED WMD RECORD CENTER JUN 10 1994

. Marchine Commission

APRIL 1994

PREPARED FOR:
PHIBRO-TECH, INC.
JOLIET, ILLINOIS

PREPARED BY: WARZYN INC. ADDISON, ILLINOIS



CC May 2000 USEPA Bill

JIII KEN

Environmental Resources Management

704 N. Deerpath Drive Vernon Hills, IL 60061-1802 (847) 680-6868 (847) 680-6847 (fax)

October 9, 1997

Mr. Ed Bakowski Ms. Karen Nachtwey Illinois Environmental Protection Agency Permit Section, Division of Land Pollution Control 2200 Churchill Road Springfield, Illinois 62706



RE:

1970250002 - - Will County

Phibro-Tech, Inc. (formerly C.P. Inorganics)

ILD062480850 RCRA Permits

Dear Mr. Ed Bakowski:

Environmental Resources Management-North Central, Inc. on behalf of Phibro-Tech, Inc. has completed the RCRA Phase I facility investigation (Phase I RFI) for the above-referenced facility. Enclosed please find the original plus 3 copies of the Phase I RFI Report.

If you have any questions, please do not hesitate to contact me.

Very truly yours,

ERM-NORTH CENTRAL, INC.

✓Mary Jo Anzia, P.E.

Project Manager

jls

cc: Thomas Moran - Phibro-Tech, Inc.

OCT 1 0 1997

TABLE OF CONTENTS

1

λħ	MINISTRATIVE OUTLINE	1
AD		1
	Project Management Plan	1
	$\boldsymbol{\gamma}$	
	Louid	
GE		3
	Facility Description/Location	
	Process Description	
	Waste Management Operations	5.
	3	
		_
SO	LID WASTE MANAGEMENT UNITS	7
	SMWU #1 - Container Storage Area 1	
	SWMU #2 - Chemical Sewer System	8
	SWMU #3 - Sludge Storage Pad	9
	SWMU #4 - Former Drum Storage Area 1	9
	SWMU #5 - Rail Car Unloading Area	10
	SWMU #6 - Ferric Chloride Filter Press	10
	SWMU #7 - Outside Drum Storage Area 2	10
	SWMU #8 - Process Sewer System	11
	SWMU #9 - Truck Unloading Area	11
	Δ	
SA	MPLING ÁND ANALYSIS PLAN	12
	Objective	12
	Scope	
	Analytical Parameters	13
	Location and Number of Samples	13
	SMWU #1 - Container Storage Area 1	
	SWMU #2 - Chemical Sewer System	
	SWMUs #3 and #4 - Sludge Storage Pad and Former Drum Storage Area 1	14
	SWMU #5 - Rail Car Unloading Area	
٠	SWMU #6 and #7 - Ferric Chloride Filter Press and Outside Drum Storage Area 2.	15
	SWMU #8 - Process Sewer System	
	SWMU #9 - Truck Unloading Area	
	Methods	
	Analytical Methods	
	Evaluation of Results	

SCHEDUL	E AND COST ESTIMATE	18
	LIST OF FIGURES	
Figure 1	Organization Chart	•
Figure 2	Site Location Map	
Figure 3	Site Plot Plan	
Figure 4	SWMU #1 Location Map - Container Storage Area 1	•.
Figure 5	SWMU #2 Location Map - Chemical Sewer System	
Figure 6	SWMU #3 and #4 Location Map - Sludge Storage Pad	•
Figure 7	SWMU #5 Location Map - Rail Car Unloading Area	
Figure 8	SWMU #6 and #7 Location Map - Ferric Chloride Filter Pre-	ss and Outside Drum
	Storage Area 2	
Figure 9	SWMU #8 Location map - Process Sewer System	**
Figure 10	SWMU #9 Location Map - Truck Unloading Area	
	LIST OF APPENDICES	
Appendix A	Filter Cake Waste Analyses	
Appendix B	IEPA Generic Permits	
Appendix C	Health and Safety Plan	
Appendix D	Quality Assurance Plan	
Appendix E	Data Management Plan	• •

ADMINISTRATIVE OUTLINE

PROJECT MANAGEMENT PLAN

Warzyn Inc. (Warzyn) has prepared this Phase I RCRA Facility Investigation (RFI) Work Plan on behalf of Phibro-Tech, Inc. (Phibro-Tech), formerly CP Inorganics, to comply with the requirements of Section 3004 of RCRA and 35 IAC 724.201 for Corrective Action. Phibro-Tech was issued a RCRA Part B Permit on September 27, 1993 which had an effective date of November 1, 1993. This Phase I RFI Work Plan has been prepared in accordance with Condition IV and Attachment F of the Part B Permit.

The purpose of the Phase I RFI is to determine the presence or absence of a release to soil from each of the nine solid waste management units (SWMUs) which were identified as requiring further investigation in the Part B permit. These are:

SWMU Number	<u>Descriptive Name</u>		
1	Container Storage Area 1		
2	Chemical Sewer System		
3	Sludge Storage Pad		
4	Former Drum Storage Area 1		
5	Rail Car Unloading Area		
6	Ferric Chloride Filter Press		
7	Outside Drum Storage Area 2		
8	Process Sewer System		
9	Truck Unloading Area		

The determination of the presence or absence of a release to soil will be made by evaluating the potential for the targeted metals to leach from the soils. The Toxicity Characteristic Leaching Procedures (TCLP) will be used to generate an artificial leachate. The leachate will be analyzed to determine the metal content, and the result will be compared to values ten times the Class II Groundwater Standards in 35 IAC Part 620. If the result exceeds the value, then a Phase II investigation will be conducted. If this value is not exceeded, then no further investigation will be conducted.

The list of analytical parameters was developed from the constituents known to be present in the wastes managed. The list of analytical parameters includes the following targeted metals; arsenic, barium, cadmium, chromium, lead, nickel, selenium, and silver. Phibro-Tech does not accept organic wastes for storage or processing, therefore, no organic constituents were included in the list of analytical parameters.

The Phase I RFI will initially be conducted in a single soil sampling event. An additional event may be required if the results were inconclusive. The Phase I RFI will consist of a total of 29 borings and 29 soil samples (exclusive of QC samples). The soil boring locations are chosen to evaluate a specific potential release pathway, and includes consideration of visual cues, such as spalling or cracks, when the boring locations are determined in the field.

The soil samples will be collected using a standard 2-inch OD split-spoon samples. The soils will be logged and classified using the Unified Soil Classification system. The elevation of the water table, if encountered, will be noted.

Standard equipment decontamination methods and sample management procedures will be followed. The field activities will be conducted in accordance with the Work Plan and the Site Safety Plan.

The field investigation is expected to take about four days. The analytical results will be available approximately 3 weeks after receipt by the laboratory. The Phase I RFI report will be submitted within 60 days after receipt of the analytical results.

The Warzyn Project Team dedicated to the completion of this project include persons experienced in RCRA, engineering, geology, and analytical methods. Figure 1 presents the Organizational Chart which outlines the IEPA, Phibro-Tech, and Warzyn personnel who will play key roles in the completion of this RFI.

GENERAL FACILITY INFORMATION

FACILITY DESCRIPTION/LOCATION

Phibro-Tech is located in Will County, on a 1.6 acre parcel of land, within the NE 1/4 of the NE 1/4 of Section 4, Township 35 North, Range 10 East. Exhibit B-3 "Land Use Map" is provided in the last revision of the RCRA Part B Permit Application (dated December 1991). This map provides the following information:

- North Arrow and Wind Rose
- Facility Property Lines
- Location of on and off-site buildings within 1,000 feet of the facility
- Topographic information (2' contour interval)
- Location of the 100-year flood plain limits
- Surface water drainage conveyances within 1,000 feet of the facility
- Land uses within 1,000 feet of the facility

The Phibro-Tech facility is entirely located within the Joliet Industrial District of northern Joliet, Illinois. Predominant land use (see Exhibit B-3 in the Part B Permit Application) within 1,000 feet of the facility is industrial in nature. The nearest residence is about 775 feet southwest of the facility. The land immediately north, west, and south of the facility is used for industrial purposes. There are no churches or schools within 1,000 feet of the facility. A small theme park is located approximately 950 feet west of the facility. The facility is bordered on the east by the Elgin, Joliet and Eastern Railroad (EJ & E) right of way.

The older buildings which are still in use by Phibro-Tech were built in the early 1900's. The Calumet Baking Powder Plant occupied the land until the 1950's. A number of small businesses are thought to have occupied the land between 1950 and 1970. The site was bought by Phibro-Tech in 1970 and operations began in 1973.

Figure 2 is the Site Location Map which shows the topography of the site and the surrounding area. Figure 3, Site Plot Plan, at a scale of 1" = 40', provides the location of the property lines, on-site buildings, structures, and loading and unloading areas.

The nearest surface water body to the facility is the Des Plaines River, located approximately 750 feet east of the eastern boundary of the facility. General topography immediately surrounding the facility is such that general surface water drainage is towards the Des Plaines River to the east. There are no permanent surface water bodies on-site. The facility is located between the elevations 550' and 560', above both the 100 and 500-year flood.

The most significant geologic feature in the site area is the fact that bedrock exists at a depth of approximately two to three feet below grade, covered by a thin layer of very dark brown friable silt loam.

The closest public well to the facility is located 1.1 miles north of the site and is used by the City of Crest Hill. The closest private well to the facility is approximately 0.35 miles west southwest of the facility.

PROCESS DESCRIPTION

Phibro-Tech has been an inorganic chemical processing plant since 1972, primarily serving the plating and printed circuit board industries. Manufacturing operations at the site involve the reclamation and refining of metal salts and the reconstitution of etchant solutions. The products manufactured at the facility include alkaline based etchant and metallic salts (predominantly carbonates, chlorides, nitrates, sulfates, and oxides of copper and/or nickel). These products are manufactured in batch reactor processes from traditional raw materials such as copper metal, technical grade acids, and alkalines and other virgin metal-bearing salts as well as from waste materials. A significant portion of the total raw materials are hazardous and non-hazardous wastes.

Manufacturing processes produce aqueous process effluent which is treated on-site in a water pretreatment system before discharge to the local POTW. The system utilizes equalization, neutralization, flocculation, clarification, sludge thickening, filtration, and pH adjustment to generate a solid filter cake which is not a characteristic or listed hazardous waste. Filter cake waste analyses are provided

in Appendix A. The waste is classified as a Class A non-hazardous waste, and is disposed of off-site in bulk amounts of 20 cubic yards per shipment (there is approximately one shipment every 2 weeks).

These manufacturing operations are not RCRA regulated, but the storage of hazardous wastes prior to the manufacturing processes is the subject of the RCRA Part B permit. The storage of hazardous and non-hazardous wastes is discussed below.

WASTE MANAGEMENT OPERATIONS

The Phibro-Tech waste storage operations take place in four distinct areas: Container Storage Area 1 (East Warehouse), Container Storage Area 2 (West Warehouse), Tank Storage Area 1 (Tank Farm) and Tank Storage Area 2 (West Warehouse). Phibro-Tech is permitted to accept the following hazardous wastes (IEPA Generic Permit Number in parentheses):

- Copper ammonium chloride (000059)
- Cupric chloride (000065)
- Copper sulfate solution and crystal (000229)
- Spent nickel waste from electroplating operations, including wastewater treatment sludges (000230)
- Corrosive metal cleaning and treatment solutions (000068)
- Spent ferric chloride (000078)
- Spent hazardous finishing solution from printed circuit board manufacturing (000099)

The IEPA Generic Permits are included in Appendix B.

Phibro-Tech is permitted to accept the following non-hazardous wastes:

- Copper metal from copper recovery in the printed circuit board industry (000104)
- Spent nickel waste (000067)
- Spent copper sulfate liquid or solid (000066)

Copper ammonium chloride, cupric chloride, and copper sulfate are typically generated in the etching of printed circuit boards. Copper sulfate solution is also generated from copper electroplating operations. Copper sulfate crystal is

April 29, 1994

Phibro-Tech, Joliet, Illinois

generated as a result of the waste minimization activities at the customer's plant. Spent hazardous finishing solutions are generated in the printed circuit board industry. Copper wastes typically are dark blue, blue, or dark green. Copper ammonium chloride is stored in containers and a tank in the West Warehouse, and in tanks in the Tank Farm. Cupric chloride is stored in containers in the West Warehouse, and in the Tank Farm. Copper sulfate wastes are stored in the East Warehouse. Spent hazardous finishing solutions are stored in containers in the West Warehouse. The hazardous waste codes for these copper wastes are D002, D004, D005, D006, D007, D008, D010, and D011, except for the spent hazardous finishing solution, which is only assigned D008.

Spent nickel wastes are generated from nickel electroplating processes. Spent nickel wastes may be generated by plating tank cleaning operations, contamination of plating bath solutions, filtering of plating solutions, and plating wastewater treatment operations. Corrosive metal cleaning and treatment solutions are typically generated from acidic metal cleaning and stripping baths, and are typically referred to as rack strip or copper nickel nitrate. Nickel wastes are typically blue and green to dark green. Nickel wastes are stored in the East Warehouse and in the Tank Farm. The hazardous waste codes for these nickel wastes are D002, D004, D005, D006, D007, D008, and D010. F006 is added if the nickel waste is a wastewater treatment sludge from an electroplating process.

Phibro-Tech accepts spent ferric chloride for temporary storage only until it can be taken off-site for disposal. Ferric chloride is stored in containers in the West Warehouse. The hazardous waste codes for the ferric chloride wastes are D002, D004, D005, D006, D007, D008, and D010.

SOLID WASTE MANAGEMENT UNITS

The RCRA Part B permit requires and RFI to be conducted at nine solid waste management units (SWMUs). The nine SWMUs are identified as follows:

<u>Number</u>	Descriptive Name
1	Container Storage Area 1
2 :	Chemical Sewer System
. 3	Sludge Storage Pad
. 4	Former Drum Storage Area 1
- 5	Rail Car Unloading Area
6	Ferric Chloride Filter Press
7	Outside Drum Storage Area 2
8	Process Sewer System
9	Truck Unloading Area

This section contains a detailed description of each identified SWMU requiring investigation. Figure 3 is a facility map which locates each of the nine SWMUs.

SWMU #1 - CONTAINER STORAGE AREA 1

The Container Storage Area 1, located inside the East Warehouse, was started-up in 1973 and is presently active. It is bounded on the east and north by the walls of the East Warehouse (Figure 4). The loading dock connecting to the East Warehouse is also included in this SWMU. The total area of floor space is approximately 4,850 square feet, which allows a maximum total capacity of 448 55-gallon drums.

Container Storage Area 1 is constructed of reinforced concrete. The concrete floor slopes towards a floor drain (673 gallon capacity), which is used to collect spills or leaks which may occur. The drain does not empty into any sumps or pipes, its only purpose is to collect spills. Upon discovery of a spill, the collected material is removed and used in one of the processes. Some cracks were visible in the concrete floor and along the base of the concrete block warehouse walls in the past. Since that time, the identified cracks have been

mapped, evaluated, and repaired by an Illinois licensed structural engineer. (Only one crack was noted to exhibit differential movement, located on the opposite side of the collection trench from the area where containers are stored, and was also repaired.) (Part B Application, Exhibit D.) The concrete unloading pad (reconstructed in 1990) slopes toward a sump in the southeast corner of the pad. The integrity of the concrete pad is good.

The waste in this area is stored indoors on wooden pallets in 55-gallon drums, 330-gallon plastic containers, or 2.5 cubic yard containers (gaylord containers). The number of drums stored in this area is dependent on the number and frequency of shipments received at the facility. The drums are stored in the area for ten days to two weeks prior to use in one of the processes.

The wastes managed in this SWMU consists of materials with U.S. EPA designated waste codes D002, D004, D005, D006, D007, D008, D010, D011, and F006. These include nickel plating solution, copper nickel nitrate solution, nickel carbonate cake, and copper sulfate solution or crystals. Non-hazardous wastes are also stored in this area. No VOC or SVOC-bearing wastes have been stored at the facility. No releases have been documented or reported from this SWMU.

SWMU #2 - CHEMICAL SEWER SYSTEM

The Chemical Sewer System was installed in the mid-1970's, constructed of construction grade PVC pipe, and was taken out of use by Phibro-Tech in 1987 by removing the main sewer line and plugging the remaining feeder lines. This SWMU runs between Buildings 1 and 2 and passes through the pump house, reactor building, and storage building, with a total length of about 450 linear feet. The location of this system, as shown on Figure 5, is estimated as no asbuilt drawings exist. There were also two branches (included in the 450 feet) which feed into the SWMU from the east side of Building 1.

This system was once part of a combined sewer system and was used to collect process effluent from the manufacturing area and handle sanitary waste. The system discharged to the Joliet Sanitary District sewer system. No documented releases have been reported or observed. Additionally, there were no visual indications of contamination (i.e., copper blue staining) noted when the sewer line was removed.

SWMU #3 - SLUDGE STORAGE PAD

The Sludge Storage Pad was started-up in approximately 1987. It is currently active with no anticipated date of closure. This SWMU is located near the northwest corner of the site, just north of the truck scales (see Figure 6). It is near the southeast corner of the proposed manufacturing building, covering an area of approximately 875 square feet (25' x 35'), able to accommodate approximately three roll-off boxes.

The SWMU is a concrete pad with no other secondary containment measures. The waste managed in this area is non-hazardous sludge with no free liquids from the wastewater treatment unit. The sludge is stored in 20-cubic yard, plastic-lined roll-off boxes. The roll-off boxes are typically removed every two weeks to the CID Landfill in Calumet City, Illinois. No stains or cracks are evident in this SWMU. No documented releases have been observed or reported from this unit.

SWMU #4 - FORMER DRUM STORAGE AREA 1

The Former Drum Storage Area 1 was started-up in the mid 1970's, and closed in the early 1980's when drums were removed from the area. It was located on the west side of the facility, bounded mostly on the south by the truck scale and to the north by Industry Avenue (Figure 6). The SWMU covers approximately 7,480 square feet and is approximately 110' x 68' and could accommodate as many as 500 drums.

The RFA noted that a 1978 inspection revealed that some barrels in this area were leaking on the ground and mixing with rainwater. The RFA noted that the drums contained wastewater treatment sludge, but Permittee did not begin generating wastewater treatment sludge until 1987. Permittee believes that the material which was the subject of the 1978 inspection was copper oxide and copper hydroxide products. The RFA incorrectly indicated that the storage area was gravel with no secondary containment. There is a concrete foundation that serves to inhibit migration of potential releases.

SWMU #5 - RAIL CAR UNLOADING AREA

The Rail Car Unloading Area is located at the southwest corner of the property. It is approximately 37' long by 13' wide (480 square feet) (Figure 7). The area was started in 1973 and is currently active with no anticipated date of closure.

The SWMU is located on a gravel area. Wastes managed in this area include copper ammonium chloride, cupric chloride, and ferric chloride. The waste is stored in 20,000-gallon rail cars until the material can be delivered to the appropriate on-site receiving center. Only ferric chloride is shipped off-site. Tubs (400-gallon nominal) are placed beneath the rail cars during the unloading process. The rail cars are designed for top-unloading only. There have been no leaks from rail cars and no documented releases observed or reported from the unit.

SWMU #6 - FERRIC CHLORIDE FILTER PRESS

The Ferric Chloride Filter Press is located on the far east side of the West Warehouse and is approximately 15' x 65' (Figure 8). The filter presses were installed in 1973, and have been out-of-service since 1986.

The filter presses were located within a concrete containment area with a two-foot wall. The floor of the unit was inspected in 1993 for possible breaches and was found to be in good condition. This area is used to manufacture virgin products from virgin materials and does not manage wastes. There have been no observed or reported releases from this SWMU.

SWMU #7 - OUTSIDE DRUM STORAGE AREA 2

The location of the Outside Drum Storage Area 2 is essentially the entire footprint of the West Warehouse, located on the southwest corner of the property (Figure 8). The area was first utilized in 1973 and was closed in the late 1970's or early 1980's, when the drums were reportedly removed.

This area was used for the storage of copper oxide and copper hydrate products and was able to store as many as 350 drums at a time. The floor was constructed of concrete with a two-foot wall (with ramp openings only) to prevent spills from escaping. There are no documented releases reported or

RFI Work Plan - Phase I

April 29, 1994

Phibro-Tech, Joliet, Illinois

observed from this unit.

SWMU #8 - PROCESS SEWER SYSTEM

The process sewer system is located on the southeast side of the facility, with an approximate total length of 100 feet. It is located just to the west of SWMU #1 (Figure 9). The system was installed in 1987, constructed of PVC pipe, and is currently used by the facility to discharge wastewater. The discharge pipe to the City of Joliet's system is also located on the southeast side of the facility. The effluent is monitored by the facility and the City of Joliet.

SWMU #9 - TRUCK UNLOADING AREA

The Truck Unloading Area is located just south of the truck scale (Figure 10). It is approximately 80' x 27'. The area was in-place in 1973 and remodelled in 1986 and is currently active with no anticipated date of closure.

The area consists of a concrete floor, on a foundation from a previous building, sloped to a sump. Collected liquids are pumped back into the waste storage tanks. Under the pad is the original unloading pad, which was used from 1973 to 1986. The wastes managed in this area consist of spent alkaline etchants, cupric chloride, and certain nickel solutions. There are no documented releases reported or observed from this unit.

SAMPLING AND ANALYSIS PLAN

Objective

The objective of sampling activities described in this Sampling and Analysis Plan (SAP) is to obtain representative data for the Phase I RFI. The purpose of the Phase I RFI is to determine whether releases of hazardous wastes and hazardous constituents to soils have occurred from each of the nine SWMUs.

The activities described in this SAP will characterize and classify the soils in and around the subject SWMUs, determine the elevation of the water table (if present in soil at the site), and develop the data necessary to determine the presence or absence of a release of hazardous waste and hazardous constituents to soil from the subject SWMUs.

Scope

The Phase I RFI will be initially conducted in a single soil sampling event. If the Phase I RFI determines that a release(s) from a SWMU(s) has occurred, then a Phase II Workplan will be prepared to determine the nature and extent of the release(s) from the SWMU(s). If a release(s) from a SWMU(s) has not occurred, then no additional investigation(s) will be conducted.

This SAP describes the procedures and practices to be used in obtaining the site investigation data. The SAP contains a statement of sampling objectives, analyses of interest, sampling equipment and procedures, sample types, and sample locations. This Phase I RFI soil investigation will consist of advancing a total of 29 borings in and around the nine SWMUs to determine the presence or absence of contamination. The soil investigation methodology will be essentially the same for each of the nine SWMUs. The difference will be the number and location of soil borings advanced in and around each SWMU.

Analytical Parameters

The Phase I RFI focuses on determining the presence or absence of a release of hazardous waste or hazardous constituents (35 IAC 721). The list of proposed analytical parameters is derived from the hazardous wastes managed at the facility, and the hazardous constituents present in the hazardous and non-hazardous waste managed at the facility.

The hazardous waste codes for these wastes may include D002, D004, D005, D006, D007, D008, D010, D011, and F006, resulting in a hazardous constituent list of arsenic, barium, cadmium, chromium, lead, selenium, silver, nickel, and cyanide. Cyanide-bearing F006 wastes are not accepted at the facility, and so cyanide is excluded from the list of analytical parameters. Arsenic, barium, cadmium, chromium, lead, selenium, and nickel present in the waste streams accepted at the facility, and so they are retained on the list of analytical parameters. The non-hazardous waste profiles do not indicate the presence of additional hazardous constituents.

Phibro-Tech does not accept organic wastes for storage or processing, therefore no organic constituents have been identified for inclusion on the list of analytical parameters.

Location and Number of Samples

The following describes the rationale for the selection of, and the location and number of samples to be collected in and around each SWMU to address the suspected release pathways identified in the RFA. The proposed locations are approximate, and the actual location will be determined in the field based upon visual cues such as staining, cracks, or low spots, where a suspected potential release may be present.

SWMU #1 - Container Storage Area 1

The Permit indicates that the structural integrity of the concrete containment must be evaluated, and soil sampling should be concentrated around the perimeter of the SWMU #1. The structural integrity of this area has previously been evaluated by an Illinois registered Professional Engineer (P.E.) and the results provided to the IEPA in Exhibit D to the Part B application. The P.E. determined that there was only one location where a crack penetrated the entire thickness of the concrete providing a potential pathway for a release from the unit. SB03 has been located on the repaired crack in the concrete to evaluate the potential for a potential release through the crack.

RFI Work Plan - Phase I

April 29, 1994

Phibro-Tech, Joliet, Illinois

Five soil borings are proposed in SWMU #1, SB01 through SB05 (Figure 4). Soil boring SB01 has been located at the lowest point of the of the unloading dock, where a potential release, if any, would collect to evaluate the potential for a release at the unloading dock. Soil borings SB02, SB04, and SB05 are located along the perimeter of the SWMU to evaluate the potential for a release to migrate through the joint at the concrete floor/wall interface. One soil sample from each of the five soil borings will be submitted for laboratory analysis.

SWMU #2 - Chemical Sewer System

In order to evaluate the potential for releases from the former Chemical Sewer System, four soil borings are proposed in this area, SB06 through SB09 (Figure 5). The soil borings are located near the Chemical Sewer System sumps, and elbows, because these are expected locations of connections and holding areas where leaks, if any, would have occurred. A total of four soil samples will be submitted for laboratory analysis.

SWMUs #3 and #4 - Sludge Storage Pad and Former Drum Storage Area 1

These two SWMUs will be investigated together, because the two areas overlap (Figure 6). Two borings are proposed to be located within SWMU #4 (SB10 and SB11) to evaluate the potential for releases to have migrated to the soils beneath the concrete foundation. One soil boring will be performed in the center (SB12) and one along the perimeter (SB13) of the Sludge Storage Pad (SWMU #3) to evaluate the potential for releases from the Sludge Storage Pad to soils beneath the concrete pad and at the perimeter of SWMU #3. Three borings (SB14 through SB16) are proposed on the perimeter of the Former Drum Storage Area 1(SWMU #4) to evaluate the potential for releases due to runoff from the pad. One soil sample from each of the borings for a total of seven soil samples will be submitted for laboratory analysis.

SWMU #5 - Rail Car Unloading Area

Three borings are proposed for this SWMU with two on the perimeter (SB17 and SB19) and one in the center (SB18)(Figure 7). Boring SB18 is proposed to be located in the middle of the rail car parking space, where potential releases would be expected to occur, although there are no documented releases from railcar unloading operations. Railcars are top unloaded from the middle of the railcar, and so spills, if occurred, would have migrated down the outside of the railcar and collected under the car in the middle of the parking space. Although no releases have been documented, the two perimeter borings are proposed to address the potential for a release to have occurred due to overtopping of the containment

pans used during unloading operations. One soil sample will be submitted for laboratory analysis from each soil boring for a total of three soil samples.

SWMUs #6 and #7 - Ferric Chloride Filter Press and Outside Drum Storage Area 2

A structural integrity evaluation of SWMU #6 will be conducted by an Illinois registered Professional Engineer. If the integrity of the unit is not satisfactory to the P.E., soil borings will be performed to determine if releases have occurred.

Because the entire area is covered with concrete, potential releases in the area would have migrated through an opening (door, dock, etc.) (Figure 8). Therefore, three borings are proposed adjacent to the three "openings" to this area. SB21 and SB23 were placed outside the two doorways. SB20 is proposed to be located in the loading area, which is the third opening in the building. A fifth boring (SB22) is proposed to be located within the building through a crack in the floor, if any. The actual location will be determined in the field based upon observation of site conditions. Soil boring SB24 is proposed to be located just to the east of SWMU #7 to detect releases from both SWMU #'s 6 and 7.

SWMU #8 - Process Sewer System

Two soil borings are proposed for this area, one inside the building (SB25) and one boring where the piping exits the property (SB26) in order to evaluate the potential for releases from the sewer piping (Figure 9). One soil sample will be collected from each of the two soil borings.

In addition, boring SB9, placed to investigate the Chemical Sewer System (SWMU #2) and boring SB3, placed to investigate SWMU #1, are near enough to this unit to aid in determining if releases may have been present in this area.

SWMU #9 - Truck Unloading Area

Three borings are proposed for this area, SB27, SB28, and SB29 (Figure 10). One soil boring is proposed near the sump, where releases would have collected. Two soil borings are proposed to evaluate the potential for runoff from the previous concrete pad. One soil sample will be collected from each soil boring for a total of three soil samples.

Methods

Phase I field activities will be conducted in accordance with the Warzyn Site Health and Safety Plan included as Appendix A. Soil borings will be advanced in each unit to a depth of approximately three feet, because a surface release from an SWMU would likely be present near the source. If field screening procedures indicate that contamination extends deeper, the boring will be advanced accordingly. The field screening will be accomplished primarily by sight, due to the colors exhibited by metal compound contamination. One sample from each boring which shows the most evidence of potential contamination will be selected for laboratory analysis.

Soil borings are performed using hollow stem auger (HSA) and split-spoon sampling techniques. A geologist will be present to classify the soils in accordance with ASTM:D 2488-84. Soils will be identified using the Unified Soil Classification (USC) system. The elevation of the water table, if encountered, will be noted. A soil boring log (soil profile) will be prepared for each boring advanced which documents the soil types encountered and their depth interval, subsurface conditions, the water table elevation (if found), and the depth of the collected sample.

Soil samples will be continuously collected and field screened by the geologist for the presence or absence of contamination by noting colors which would indicate the presence of a metal compound. Additionally, pH measurements of each soil sample will be obtained. A standard 2-inch OD split-spoon sampler will be used for collection of soil samples.

Soil samples selected for laboratory analysis will be placed in laboratory-cleaned glass jars and labelled with an identifying sample number, the sample location and date, and sampling personnel's initials. Samples submitted for analysis are preserved on ice and shipped in a cooler overnight to Warzyn's analytical laboratory in Madison, Wisconsin for analysis. Standard chain-of-custody procedures are followed regarding shipment and receipt of samples.

Drill cuttings and liquids generated are left at the site, in 55-gallon steel drums, if required by site conditions. When completed, borings will be backfilled with bentonite. Borings drilled through concrete will be refinished with concrete after backfilling. The split-spoon sampler is cleaned between samples to minimize cross contamination. The cleaning procedure consists of a soap and water or trisodium phosphate (TSP) wash, followed by a triple rinse with deionized or distilled water. To avoid cross contamination between soil borings, drilling augers are steam cleaned between holes.

Analytical Methods

Soil samples will be extracted using the Toxicity Characteristic Leaching Procedure (TCLP) and the extract will be analyzed using appropriate methods from "Test Methods for Evaluating Solid Waste", Third Edition (SW-846).

Evaluation of Results

The soil sample analyses are designed to determine the amount of leachable metals present in the samples. The samples will be extracted using the TCLP, and the extract analyzed to determine the concentration of leachable metals present. The result will be compared to a value ten times the Class II Groundwater Standards listed in 35 IAC Part 620. If the result exceeds this value, a Phase II Investigation will be performed. If the result does not exceed this value, no further investigation will be conducted.

SCHEDULE AND COST ESTIMATE

Upon approval from the IEPA, the project will be initiated by arranging for drilling services. It is anticipated that the scope of work in this work plan (drilling and sampling) can be completed in approximately three or four working days. The samples collected would be shipped at the completion of the field activities. Analytical results would be received in approximately three weeks from the date of laboratory receipt of samples. Within sixty days of receipt of the analytical results, a report would be issued documenting the presence or absence of contamination in each of the nine SWMUs which were investigated.

The total estimated cost for performing 29 borings, sampling each foot for field screening and soil classification purposes, refilling the boreholes and finishing with concrete, analyzing 29 samples (one from each boring) for metals, using TCLP and preparing a report documenting these activities and presenting the results is approximately \$24,750. These costs are broken down in the following manner:

includes:				
Labor	•			
Equipment		.3		
Subcontractor			-	
Analytical			,	
Project Management				
Report Preparation	 _.			\$7,500
includes:				
Labor				
Expenses			,	
			**	

KAW/jrs/MJH [chi rpt 99] 6126200

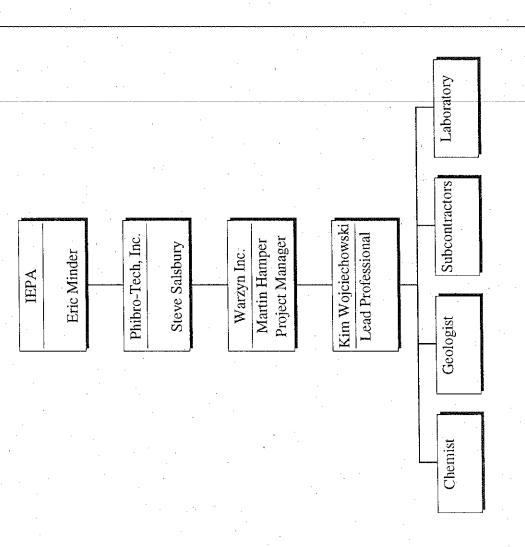
RFI Work Plan - Phase I

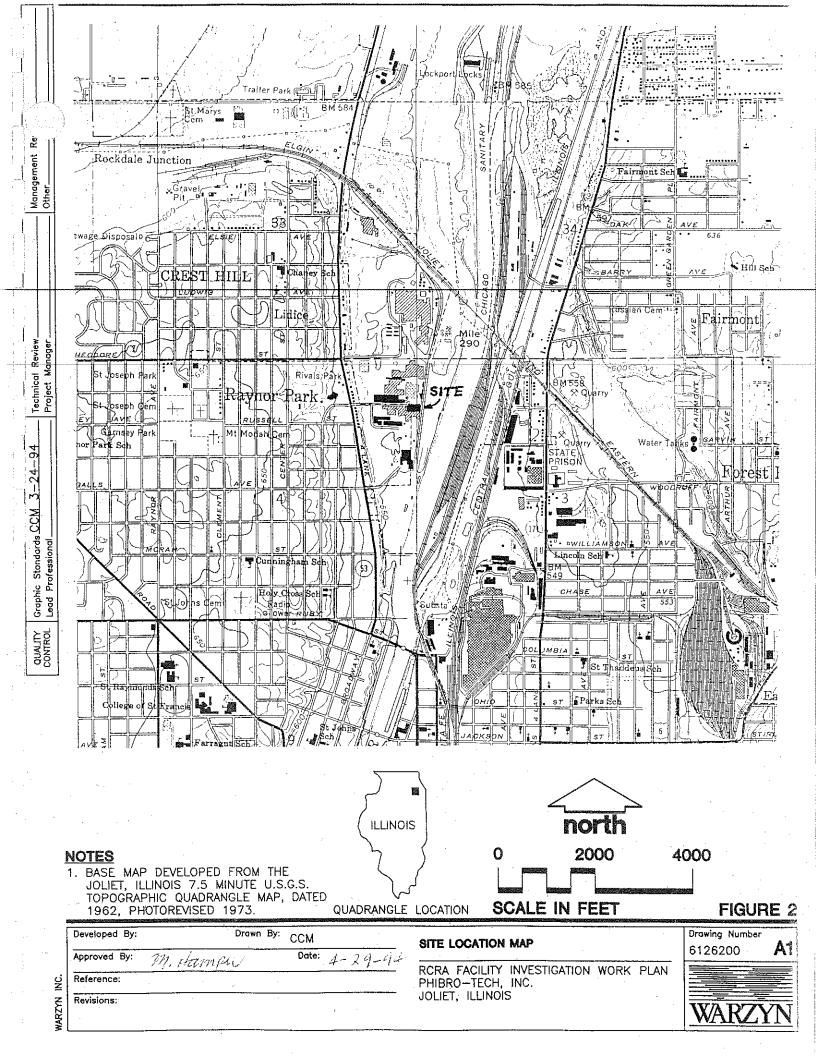
April 29, 1994

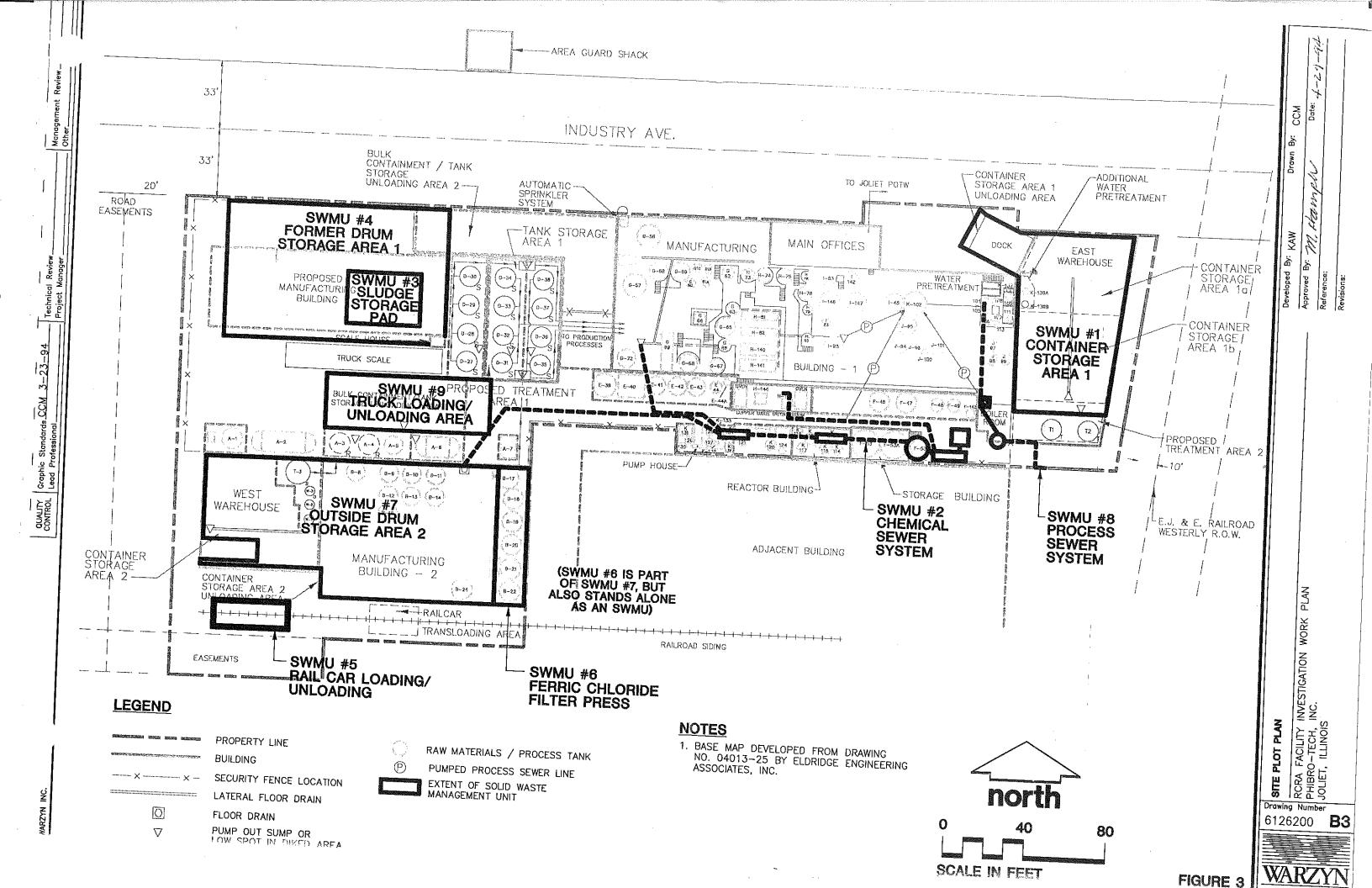
Phibro-Tech, Joliet, Illinois

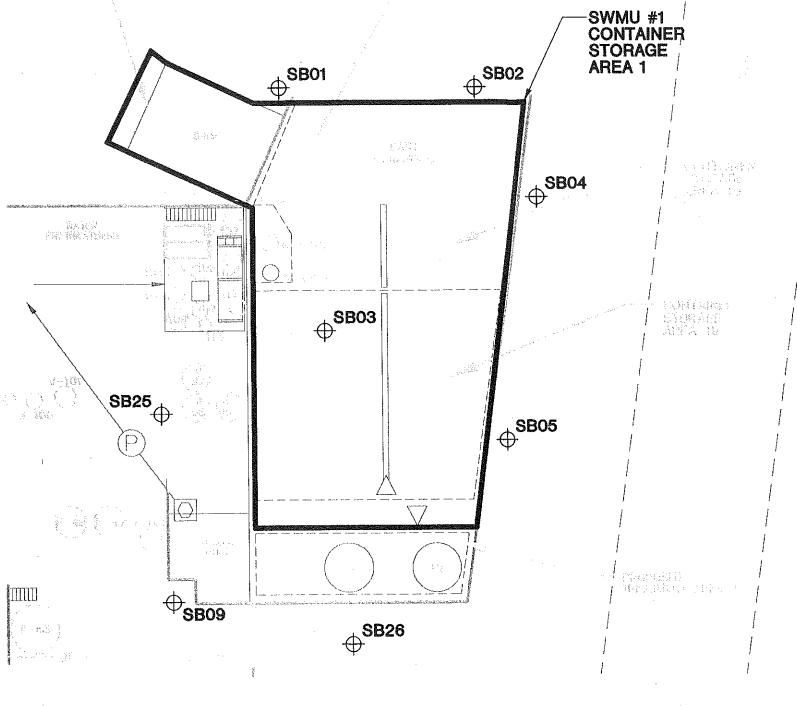
23

RCRA Facility Investigation Work Plan Phibro-Tech, Inc. Joliet, Illinois









LEGEND

PROPERTY LINE BUILDING SECURITY FENCE LOCATION

LATERAL FLOOR DRAIN Manufactural of the control of the c FLOOR DRAIN

 ∇

PUMP OUT SUMP OR LOW SPOT IN DIKED AREA

(P)

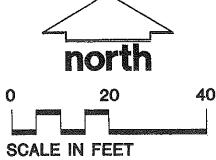
PUMPED PROCESS SEWER LINE

NOTES

EXTENT OF SOLID WASTE MANAGEMENT UNIT

SB01 APPROXIMATE LOCATION OF PROPOSED SOIL BORING AND NUMBER

- 1. BASE MAP DEVELOPED FROM DRAWING NO. 04013-25 BY ELDRIDGE ENGINEERING ASSOCIATES, INC.
- 2. REFER TO FIGURE 2 FOR LOCATION OF SWMU WITHIN THE FACILITY.



CCM Date:

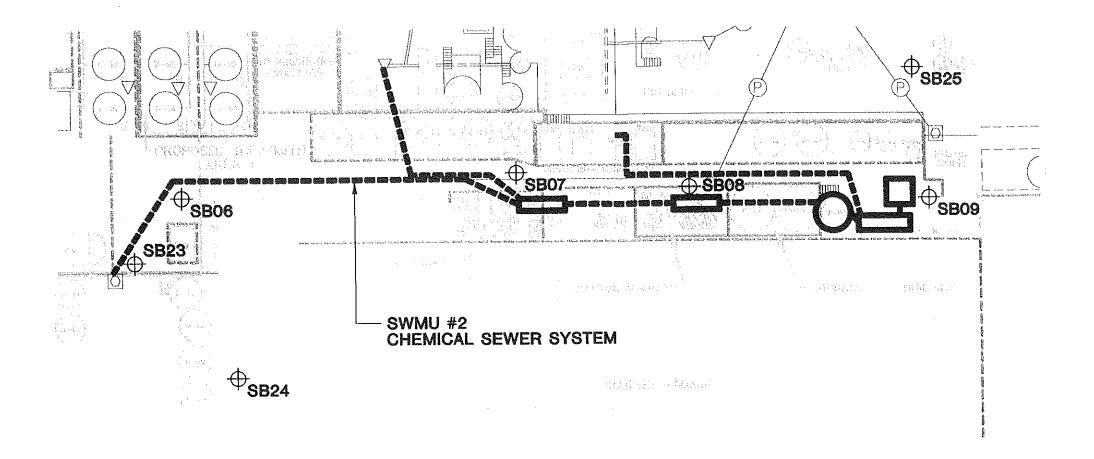
Developed By: KAW Approved By: .777

SWMU #1 LOCATION MAP CONTAINER STORAGE AREA 1
RCRA FACILITY INVESTIGATION W
PHIBRO-TECH, INC.
JOLIET, ILLINOIS

Drawing Number

WARZ

6126200



LEGEND

PROPERTY LINE

BUILDING

SECURITY FENCE LOCATION

LATERAL FLOOR DRAIN

 \bigcirc

FLOOR DRAIN

 ∇

PUMP OUT SUMP OR LOW SPOT IN DIKED AREA

⊕SB06

PUMPED PROCESS SEWER LINE

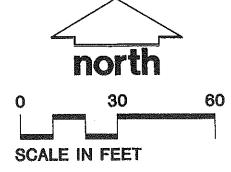
EXTENT OF SOLID WASTE MANAGEMENT UNIT

APPROXIMATE LOCATION OF PROPOSED SOIL BORING

AND NUMBER

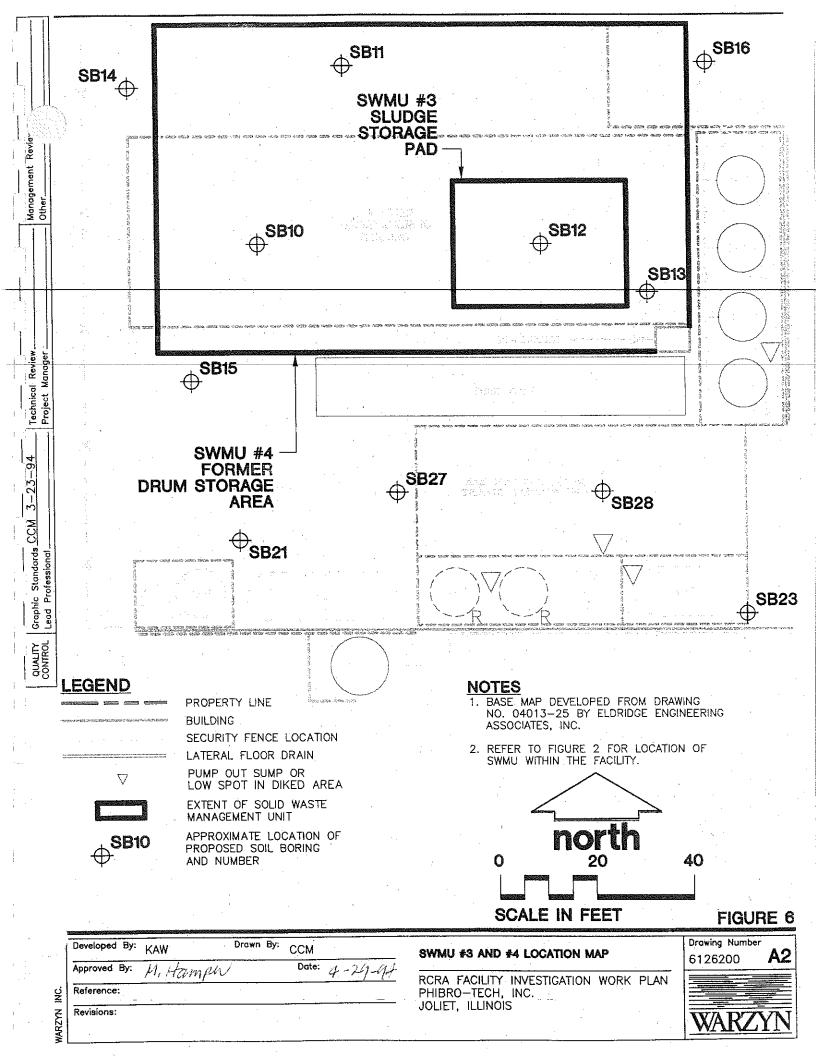
NOTES

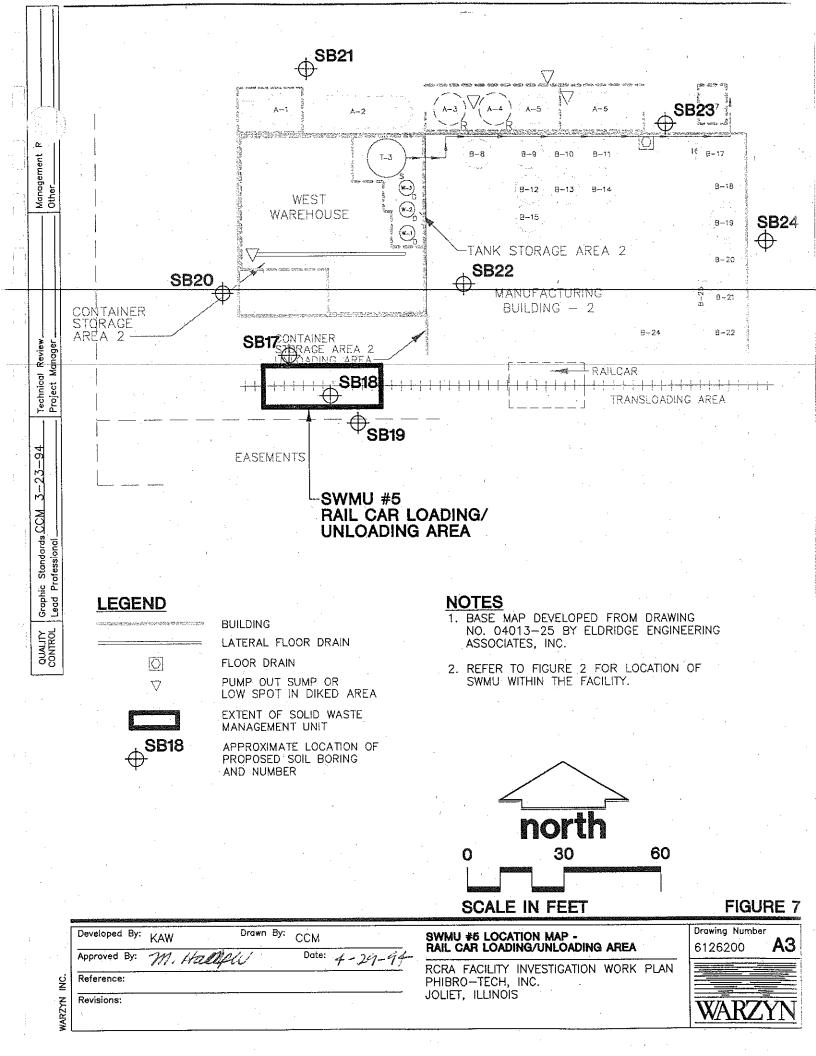
- 1. BASE MAP DEVELOPED FROM DRAWING NO. 04013-25 BY ELDRIDGE ENGINEERING ASSOCIATES, INC.
- 2. REFER TO FIGURE 2 FOR LOCATION OF SWMU WITHIN THE FACILITY.

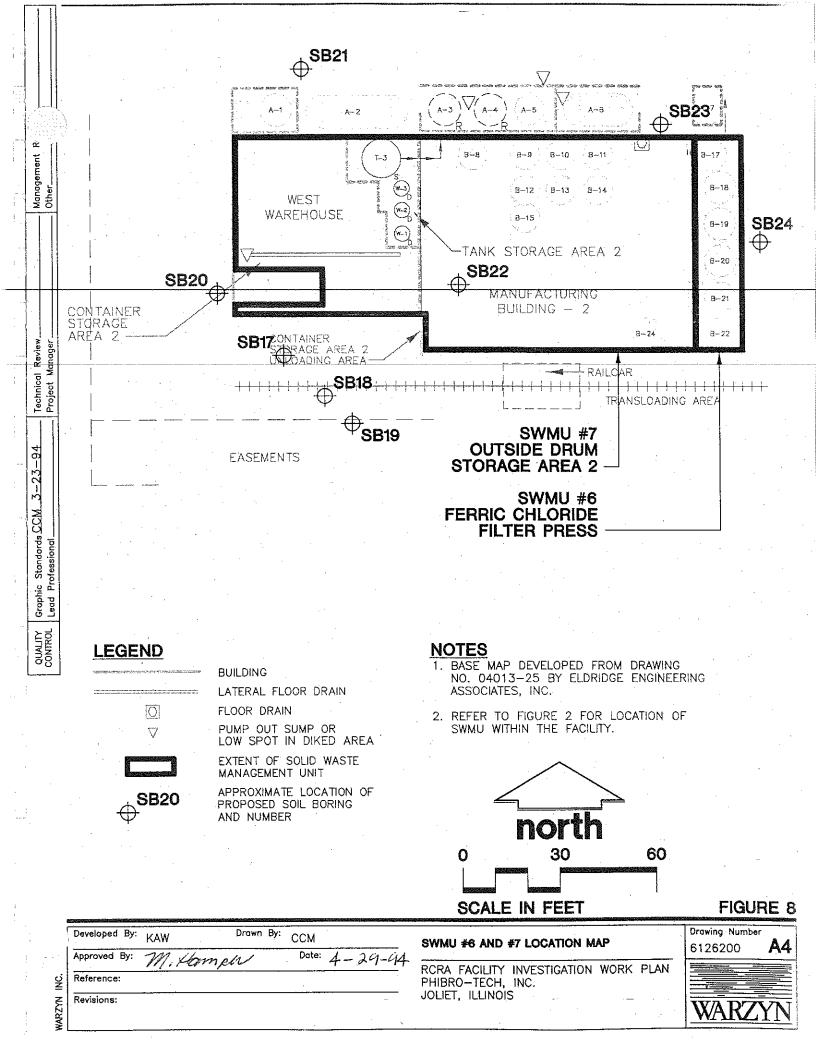


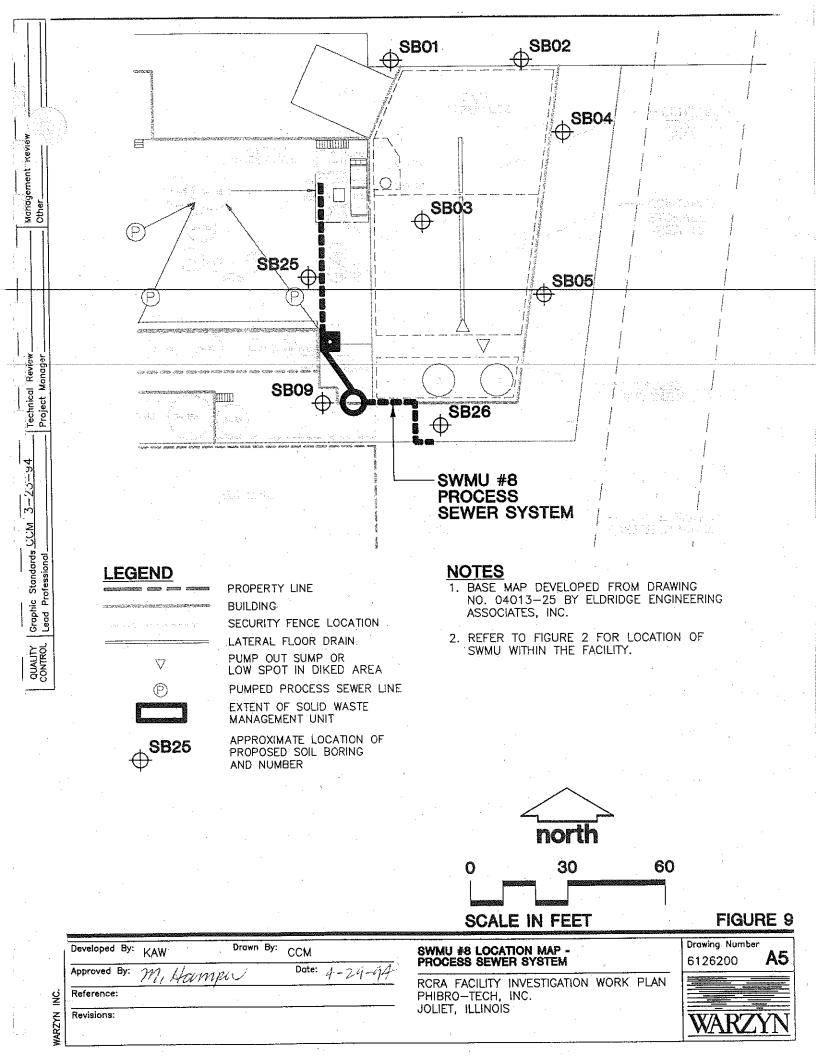
Developed By: KAW Drawing Number 6126200 **B5** WARZYN

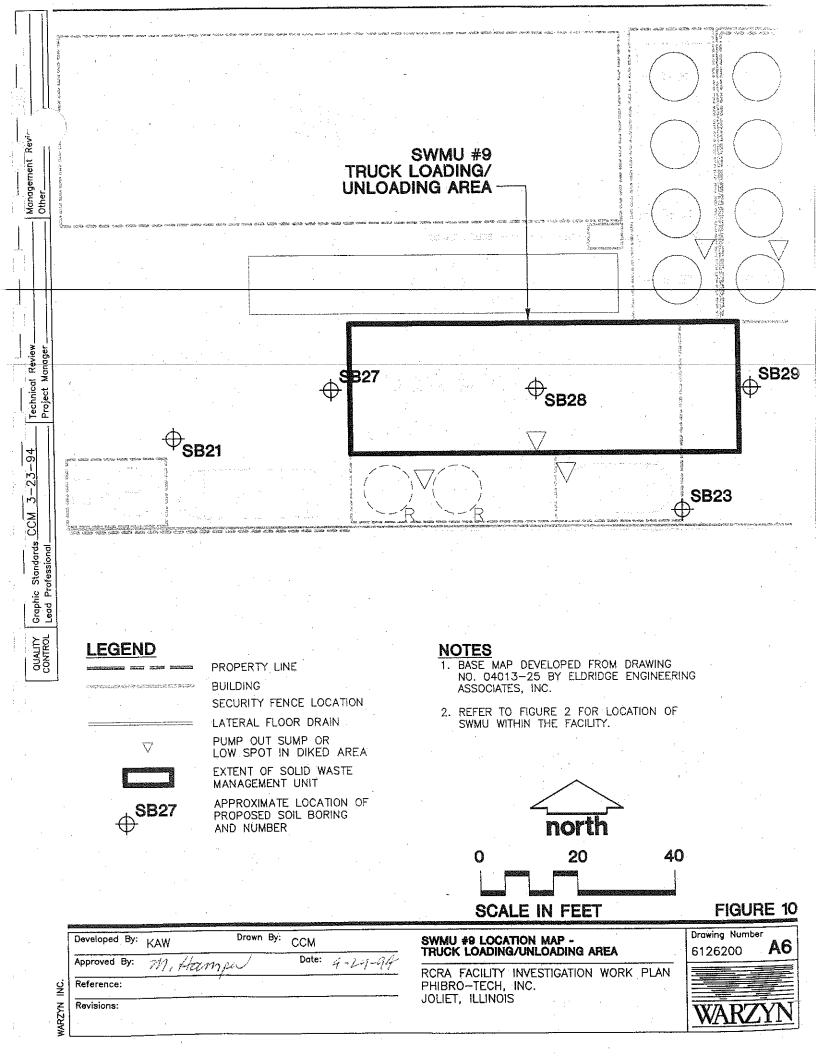
CCM Date: 4











Α

A FILTER CAKE WASTE ANALYSES

SPECIAL WASTE ANALYSIS REPORT

RVD A 8 2 6 3 3

No representation concerning algorithms of the rep	outsquare is used to sub cruet betsoy of sumit.	PHOM SAMPLE CONTAINER
LABORATORY HAME: CID PROCESSING CENTER	GENERATOR C P Inorganics	
LABORATORY PHONE (312) 891-1500	Industry Ave., Joliet, I	1. 60435
A THE RAIL OF THE PARTY.	Metal Hydroxide	
DATE SAMPLE TAKEN: 6/16/86	PROPOSED SITE CID #2	
AR NAMES E NUMBER ARRIGNED: 11556-3	CERTIFICATION OF RE	P. EALIPLE OBTAINED? 🔲 YES 🖄 NO
CY STIFF LT YOM: Except an explicitly nated, all analytical data reported by	epine more existence ruges has quecized and antimiseour raine armite backs	is sitylens and abortom lastylens and norton

Deboah An Leniga

6/25/86 DATE OF REPORT

TEST	TOTAL AS RECEIVED	TEST	TOTAL AS RECEIVED	TEST	AS AS DEVISOSE	EP TOTAL E	CALCULAI ALAIMUN LP IBENCII
SPECIFIC GRAVITY		PHENOLS, mg/l	4 10.0	ARSENIC. As As, mg/l	50.4		
H (AS RECEIVED)		DIL & GREASE, mg/l		BARIUM, as Ba, mg/l	34.1	i	- <i></i>
H (10% SOLUTION)	12.0	PC8's, mg/1	· - -	CADMIUM, as Cd. mg/l	0.39	0.01	 .
H (10% SOLUTION WITH		TOTAL ORGANIC CARBON (TOC), mg/l		CHROMIUM, TOTAL 25 Ct, mg/l	84.9	0.05	
CHCL, EXTRACTION)		TOTAL ORGANIC HALOGEN (TOX), mg/l		HEXAVALENT CHROMIUM, & (Cr-1), mg/			
		C-56, mg/l	-	COPPER, as Cu, mg/l	<u>124000</u>	227.	
CIDITY, % as		TD1, mg/l		IRON, as fe, mg/l			
ALKALINITY, The as Ca (OH) 2	8.27	BTUND		LEAD, as Pb. mg/l	255.	0.16	<u> </u>
· '' N140H	0.87	CHLORINE, mg/l	j	MERCURY, as Hg, mg/l	10.044	<u> </u>	
TOTAL SOLIDS & 105 °C. %	52.44	SULFUR, mg/l		NICKEL, 25 Ni, mg/l	5000	9.52	<u> </u>
TOTAL DISSOLVED SOLIDS, mg/l		WATER CONTENT, %		SELENIUM, as Se, mg/l	0.39		<u>!</u>
TOTAL SUSPENDED SOLIDS. %		ORGANIC SOLVENTS.%		SILVER, 25 Ag, mg/l	5.04	·	
ASH CONTENT & 550°C, %	52.2	6		ZINC, as Zn. mg/l	2210	42.0	<u> </u>
•							
FLASH POINT (C.C.) %			·				1
FLASH POINT (O.C.) of						<u> </u>	1.
FLASH POINT (O.C.) F SOLID	>212°					<u> </u>	-
				ENDRIN, mg/I	<u> </u>		
NITROGEN AMMONIA, as N. mg/l				LINDANE] mg/l	1	<u>i</u>	<u> </u>
TOTAL KJELDAHL NITROGEN, as N. mg/	1			METHOXYCHLOR, mg/l		<u> </u>	i
CHLORIDES, as Cl. mg4		PAINT FILTER (FREE LIQUIDS) %	PAS	S TOXAPHENE, mgn			i
FEJORIDES, as F, it q/I		PENETHUMETER, TOHS/SQ. FT.		2, 4-D, mg/l	<u> </u>		1
MTRATE, as in, might		E 00, mg.1		2 4, 5.7.P (SILVEX), mg/l		<u> </u>	
PHOSPHATE, as P. mg/l	1	COD, mg/l					<u> </u>
TUTAL PHOSPHORUS, 25 F, mg/l						<u> </u>	
SULFATE, 25 SOL mg/l		COMPATIBLE WIT	H DEWATE	RING PLANT	•		
FERROUS IRON, (Fe+2), mg/l		COMPATIBLE WIT		•			
SULFICES (TOTAL), mg/l				ZARDOUS SOLIDIFICATION			
SULFIDES (DISSOLVED), mg/l	42.						
		REASON:	THE TOWN	, increase a security			
CYANIDES (TUTAL); mg/l	k10.		• • •				•
CYANIDES (FREE) AT pH < 1.0 AND		PHYSICAL APPEA	RANCE:	Green moist chunky so	olid, s	trong	a mmc

WATER MIX:,

TYPE OF DIGESTION FOR TOTAL HEAVY METALS ANALYSIS: DEGROSS () ASH () BOMB

CYANIDES (FREE) AT pH < 1.0 AND 150° FOR V: HR, mg/l

BOILING FOR 1 HR

"NOT TESTED — THE RESULTS REPORTED ARE THE MAXIMUM POSSIBLE EP TOXICITY VALUES BY CALCULATION."

JUN 27

BASTE PROPEL BALLET COOK SPECIAL WASTE ANALYSIS REPORT CID A, 8, 2, 6, 3, 3 This Report is intended for the sole use and benefit of Wasts Management and its companies. No representation concerning significance of the reported data is made to any other person or entity. FROM SAMPLE CONTAINER C P Inorgancis QEDIEDRATOR_ SMAN YNOTAROGAL (312) 646-3099 10 Industry Ave Joliet 60435 CITY & STATE LABORATORY PHONE: Metal Hydroxides 5/31/91 DATE SAMPLE DATES 6/05/91 Proposer are CID Landfill #2 DATE BALLETLE RECEIVED AT LAB: 14354 CERTIFICATION OF REP. SAMPLE OFTENEDTY (A TES) NO LAB BAMPLE WINDER ASSICHED. CERTIFICATION: Except as noted, all snerytical data reported below trens obtained under any direction and supervision. Where any analytical equipment aposition or approved in the TEO techny's weeks analysis plan trens used in conducting this analysis. This ole precension and analytical met Milliam & July 10, 1991 MONATURE: BUTE OF REPORT William R. Karpas LAS MAKAGER HAME TODAL TOUL TOTAL 8 TCL TEST TEST AS RECEIVED TEST TOOCITY RECEIVED RECEIVED 7.10 <10.0 ARSENEC, as As, mora < 0.1 PHENOLS, mod SPECIFIC GRAVITY 56.0 BAPANA, as ba, mod OL & GREASE, most pH (AS RECEIVED) <2.0 CADSHILLS SE CX. MOA 190. <0.1 POB's, Regal 11.9 HH (190% SOLUTION) CHOMEN, TURL IN CL most TOTAL ORGANIC CARBON (TOC), mo/l 56.0 < 0.1 HITH HOITLINGS #FOX) Ha CHOIL EXTRACTION) HEXAMILENT CHROLOUGH, IN (C)+9, mg/l TOTAL CAGANIC HALOGEN (TOX), Ing/I COPPER, as Cu, more 5.2 C-56, more 113,000 190%, as he, mg/f ACCOUTY, % ES TDL, mod ALKALMITY. W & Ca(OH)2 LEAD, as Pa; mg/l 410. 0.1 STUAL MAHGANESE, as lin, mort 0.2 CHLORINE, mon ALKALIMITY, % as NH40H <0.01 SULFUR, mod MERCURY, as Ho, mod 49.50 1800. WATER CONTENT, % HECKEL, as Ni., mon < 0.1 TOTAL SOLIDS @ 105°C, % Organic Solvents (f-code Solvents) Detection Limit = 1.0 PPMSELENBULK, as Su, mg/l TOTAL DESSOLVED SOLIDS, mg/l < 0.20NOVE DETECTION LIMET = 1.0 PPM (THOSE DETECTED LISTED BELOWL) 24.0 < 0.1 TOTAL SUSPENDED SOLIDS, % *ECTECTE* SLYER, as Ac, may THALLIAM, SE TI, MON ASH CONTENT @ 550°C, % 45.60 ZIMC, as Dil, modi 12,000 < 0.1FLASH POINT (C.C.) F (LICUID) >212° FLASH POWNT (OLC.) F (SOLID) ENDRAL MOA LINDUKE, INDI METROGEN ALMAONIA, BE K, mg/l CO MALP TEST METHOXYCHLOR, mod NOTAL KJELDAHL MITROGEN, MIN, mg/l Pass TOXAPHENE, most CHLOREDES, as CI, most PANTAUER (FREE LIQUIDS) % PENETROMETER, TOKS/SQ. FT. 240 mort FLUORIDES, as F, mg/l 2,45-TP (SELVEX), mo/ 800 mod MITRATE, M. K. MOA COD, more PHOSPHATE, BE P. INGA TOTAL PHOSPHORIUS, as P. mon ALSO, SEE ATTACHED ONE (1) PAGE. SULFATE, as 30, mg/l FERROUS IROU, (Fe+1), mg/l COMPATIBLE WITH BIOLOGICAL TREATMENT SULPIDES (NOTAL), mg/l <2.0 SULPIDES (DISSOLVED), mg/l INCOMPATIBLE WITH TREATMENT PLANT REASON:_

PHYSICAL APPEARANCE:

WATER MIX:

flecks.

TYPE OF DIGESTION FOR TOTAL HEAVY METALS
ANALYSIS: (\$2,680SS () ASH () 80H8

CYANIDES (TOTAL), most

BOKLING FOR 1 HR, mg/l

150°F FOR 1/2 HR, mg/l

COUNTRIES (FREE) AT pH < 1.0 AND

CYANDES (FREE) AT pH < 1.0 AND

< 10.0

HOT TESTED — THE RESULTS REPORTED ARE THE MAXIMUM POSSIBLE EP TOXICITY WILLIES BY CALCULATION.

<u>faint ammonia odor</u>

Green/Black powdery solid with white



MO. J. G AND TECHNOLOGIES, INC.

8100 North Austin Avenue Morton Grove, Illinois 60053-3203 708/967-6666 FAX: 708/967-6735

LABORATORY REPORT

17743-A

Waste Management CID Landfill #2 138th St. & I-94

Calumet City, IL. 60409

Report Date: 7/8/91 Sample Received: 6/25/91

Generator: CP Inorganics

Sample Description: Metal Hydroxides

Sample No.: 0261

Profile No.: A82633-14354

			Concent	ration d In	Adjusted	Method Detection	Regulatory
	. (lompounds	Sample	Blank	Concentration	Limit (MDL)	Limit
		Benzene	<0.25	<0.01	<0.25	0.01	0.50
		Carbon Tetrachloride	<0.25	<0.01	<0.25	0.01	0.50
		Chlorobenzene	<50.0	<0.01	<50.0	0.01	100.00
		Chloroform	<3.0	<0.01	<3.0	0.01	6.00
		011201 02012					0.00
	5.	o-Cresol	<100.0	<0.01	<100.0	0.01	200.00
	6.	m-Cresol	<100.0	<0.01	<100.0	0.01	200.00
		p-Cresol	<100.0	<0.01	<100.0	0.01	200.00
	Tot	cal Cresol	<100.0	<0.01	<100.0	0.01	200.00
-			-		4	•	•
	8.	1,4-Dichlorobenzene	<3.75	<0.01	<3.75	0.01	7.50
	9.	1,2-Dichloroethane	<0.25	<0.01	<0.25	0.01	0.50
	10.	1,1-Dichloroethene	<0.35	<0.01	<0.35	0.01	0.700
	11.	2,4-Dinitrotoluene	<0.07	<0.01	<0.07	0.01	0.13
				•			
	12.	Hexachlorobenzene	<0.07	<0.01	<0.07	0.01	0.13
	13.	Hexachloro-1,3	<0.25	<0.01	<0.25	0.01	0.50
		-butadiene				•	
		Hexachloroethane	<1.50	<0,01	<1.50	0.01	3.00
	15.	Methyl Ethyl Ketone	<100.0	<0.01	<100.0	0.01	200.00
						1	
		Nitrobenzene	<1.00	<0.01		0.01	2.00
		Pentachlorophenol	<50.00	<0.01	<50.0	0.01	100.00
		Pyridine	<2.50	<0.01	<2.50	0.01	5.00
	19.	Tetrachloroethylene	<0.35	<0.01	<0.35	0.01	0.70
	.DU	Trichloroethylene	<0.25	ZA A1	<0.25	0.01	. 0 =0
		2,4,5-Trichloropheno		<0.01 <0.01	<200.00	0.01	0.50
		2,4,5-frichloropheno				0.01	400.00
•		· · · · -	· ·	<0.01	<1.00	0.01	2.00
	۷0.	Vinyl Chloride	<0.10	<0.01	<0.10	0.01	0.20

All results expressed as ppm unless otherwise indicated. Methods performed according to SW-846, "Test methods for Evaluating Solid Waste".

Analysis performed on Extract from TCLP.

LABORATORY DIRECTOR

B IEPA GENERIC PERMITS

State of Illinois ENVIRONMENTAL PROTE

P 435 D98 238

MAIL

Mary A. Gade, Director 217/524-3300

2200 Churchill Road, Springfield, IL 62794-9276

September 2, 1993

C.P. Inorganics, Inc. 10 Industry Avenue Joliet. Illinois 60435

Re: 1970250002 -- Will County C.P. Inorganics, Inc. ILD062480850 Log No. 1992-020 State Permit File

Gentlemen:

This letter is to inform you that the Agency has revised your Supplemental Permit 1984-42-SP to include the following modifications:

- The chromium limitation in generic permit 000230 has been revised.
- 2. The water, chloride, iron and zinc limitations in generic permit 000078 have been revised.
- 3. The pH, water, hydrochloric acid and iron limitations in generic permit 000078 have been revised. In addition, a new constituent, nickel, was added.
- 4. The nickel, carbonate, total solids, water, sulfate, chloride and sulfamic acid limitations in generic permit 000067 have been revised.
- 5. The water limitation in generic permit 000066 has been revised.

Should you have any questions regarding this permit, please contact Mark Schollenberger, P.E. of my staff at 217/584-3307.

Very truly yours.

Lawrence W. Eastep, P.E., Manager

Permit Section

Division of Land Pollution Control

Bureau of Land

LWE: MAS/m]s/sp1136r/1

cc: Will County Landuse Department

Mary A. Gade, Director 217/524-3300

2200 Churchill Road, Springfield, IL 62794-9276

September 2, 1993

C.P. Inorganics, Inc. Thomas A. Cassata, President Post Office Box 195 Orland Park, Illinois 60462

Re: 1970250002 -- Will County Joliet/C.P. Inorganics, Inc.

Permit No. 1980-15-OP

Supplemental Permit No. 1984-42-SP

Log No.: 1993-255 (1992-187, 1992-020, 1988-0204, 1989-0055, 1989-0371)

Expiration Date: May 7, 1994

Gentlemen:

Supplemental Permit 1984-42-SP is hereby issued to the above named waste management facility to allow acceptance for storage and recovery only, the following aqueous waste streams from any IEPA registered generator on a generic basis:

- 1. Spent hazardous ammoniacal copper solution that contains ammonia, chloride and copper (see attached waste stream permit 000059).
- 2. Spent hazardous copper chloride (see attached waste stream permit 000065).
- 3. Spent copper sulfate, a hazardous waste that contains sulfates, sulfuric acid and copper (see attached waste stream permit 000229).
- 4. Spent nickel waste, including wastewater treatment sludges, a hazardous waste from electroplating and circuit board operations that contains carbonates, boric and sulfamic acids, chlorides, sulfamates and nickel. (See attached waste stream 000230)
- Corrosive metal cleaning and treatment solutions including stripping, pickling, etching and plating baths. (See attached waste stream 000068)
- 6. Spend ferric chloride that contain copper chloride and hydrochloric acid (see attached waste stream permit 000078).
- Spent hazardous finishing solution from printed circuit board manufacturing (see attached waste stream permit 000099).
- 8. Copper metal from copper recovery until in the printed circuit board industry (see attached waste stream permit 000104).
- 9. Spent nickel waste, a non-hazardous waste that contains carbonates, boric and sulfamic acid, chlorides, sulfamates and nickel (see attached waste stream permit 000067).

10. Spent copper sulfate, a non-hazardous waste that contains sulfates, sulfuric acid and copper (see attached waste stream permit 000066).

Final plans, specifications, application and supporting documents as submitted and approved shall constitute part of this permit and are identified on the records of the Illinois Environmental Protection Agency, Division of Land Pollution Control by the permit number(s) and log number(s) designated in the heading above. This supplemental permit is subject to the standard conditions attached and is further subject to the following special conditions:

- All wastes shall be transported from each generator to this treatment facility under a properly completed manifest.
- 2. All wastes accepted under this generic waste stream permit shall be appropriately treated (chemical precipitation, filtration, crystalization and evaporation) and wastewater effluents discharged (under necessary permits) to the sanitary sewer and residuals transported to a permitted disposal site utilizing the Agency supplemental waste stream permit and manifest system.
- 3. Ferric chloride shall be accepted at this site for storage only.
- 4. An analysis of each waste stream accepted from each generator shall be maintained on file at your premises for review by the Agency.

Except as modified above, this site shall be operated in accordance with the terms and conditions of Permit No. 1980-15-OP.

Very truly yours,

/Lawhence W. Edstep, Dermit Section

Division of Land Pollution Control

Bureau of Land

LWE:MAS/mls/spl136r/6-7

Attachments

cs: Will County Landuse Department



GENERIC WASTE STREAM PERMIT ATTACHMENT.

SITE CODE: 1970250002

GENERIC W/S PERMIT NUMBER: 000059

SITE NAME: C P INORGANICS

SUP/OP PERMIT NUMBER: 19840215P

DATE RECEIVED: 01/05/90

APPROVAL DATE: 02/23/84: EXPIRATION DATE: 03/09/94

GENERIC WASTE CODE: 0035

GENERIC WASTE NAME: COPPER METAL RECOVERY FROM PLATING AND ETCHING SOLUTION

WASTE CLASSIFICATION: HAZARDOUS NOT SUBJECT TO FEE

USEPA HAZARDDUS WASTE NUMBER(S): D002,0004,0005,0006,0007,0008,0010,0011

HANDLING CODE(S): S01,S02,T23,T31,T36,T40,T41,T45,T57

FLASH POINT (MIN): > 200F PH (MIN): 2.1 PH (MAX): 12.4

	CRITERIA FOR	MASTE	CONSTITUENT	· 2	
CODE	NAME				LIMITS
0001	WATER	6.	· ·	0070	
0032	COPPER		•		
0129	AMMONIA			0016	
0130	CHLORIDE		•	0.030	
0131	TOTAL SOLIDS		1 *	0022	
0024	ARSENIC	•		0068	I YOL
0036				1000	PPH
	BARIUM			0500	PPM
0025	CADHIUH			0100	PPM
0031	CHROMIUM			0500	PPM
0030	LEAD			1000	
0028	SELENIUM			0500	
0034	SILVER			0100	PPM
0048	IRDN		•		
0033	NICKEL			1000	PPA
0035	ZINC	•		1000	
0280	AMMONIUM PERSULFATI	· -	•	1000	PPM
METHOD	* RECYCLE, REUSE	- DR	RECI SMATTON	0010	% VOL

TREATMENT METHOD: METALS RECOVERY

MAS

DISPBSAL



المتوافقية أأفك فأفيان الصريب يتيان الولاجي الميهي GENERIC WASTE STREAM PERMIT ATTACHMENT.

SITE CODE: 1970250002 ere significant or a contract of

GENERIC W/S PERMIT NUMBER: 000065

SITE MANE: C'P INORGANICS

SUP/OP PERMIT MUMBER: 19840425P

DATE RECEIVED: 03/13/84

:APPROVALEDATE: .05/07/84 EXPIRATION DATE: 03/09/94

SENERIC WASTE CODE: 0035

SENERICIMASTE NAME: COPPER METALIRECOVERTIFE OF PLATING AND ETCHING SOLUTION

WASTE CLASSIFICATION: HAZARDOUS NOT SUBJECT TO FEE

USEPATHAZARDOUS.WASTE NUMBER(\$)::D002,0004,0005,0006,0007,0008,0010,0011 الأرقى وقعوا والموالي والمعارية والمتعارف والمعارف المعارف والمالية والمالية والمالية والمالية والمالية والمالي

HANDLING CODE(S): S01,S02,T23,T31,T36,T40,T41,T45,T57

en la la companya de la companya de

- CRITERIA FOR WASTE PROPERTIES:-

FLASH POINT (MIN): N/A F. PH (MIN): 0.1 PH (MAX): 4.0

- CRITERIA FOR WASTE CONSTITUENTS -

CODE: HAME MAX LIMITS 00321 COPPER 0018.2 VOL 0130. CHLORIDE :0025 % YOL 0131 TOTAL SOLIDS .0043.% YDL 8001 MATER -.6098. T. VOL 60243 ARSENIC: .1000.PPM. 0036 BARIUM 8588 PPM. CADMIUM: 0025 8100. PPM

.0031: CHRONIUM 0500 PPM. 0030 LEAD 1008 PPM .0028 SELENIUM 0508 PPM

0034 SILVER .0109.PPA" .0048 IRON: -.1000 PPM 0033 MICKEL 1000 PPM

0035 IINC: ----0004: Z MT 0039. HYDROCHLORIC.ACID SOZO X VOL

DISPOSAL: METHOD: TRECYCLE: REUSE: DR RECLAMATION

TREATHERT IMETHOD: IMETALS RECOVERY

MES.



GENERIC WASTE STREAM PERMIT ATTACHMENT:

SITE CDDE: 119702500021 GENERIC W/S PERMIT: MUMBER: 000229 المحجودة والأراز والمستديد فيتراث والأرام فيتراث SITE:MANES (C)P INORGANICS SUP/OP.PERMIT!MUMBER: 1984042SP DATE RECEIVED: 02/28/89. · APPROVAL.DATE2 03/09/89 EXPIRATION DATE: 03/09/94 والعام فالحام المستميل المستهدي التعام فالمستم فالمستم فالمستم GENERIC WASTE CODE: 0128 المتصفية فالمتعادة المتعادية والمتعادة الطالمان GENERIC WASTE MARE: COPPER SULFATE (SOLID OR LIQUID) !WASTELCLASSIFICATION: HAZARDOUS NOT SUBJECT TO FEE USEPACHAZARDOUS WASTE.NUMBER(S): 10002,0004,0005,0006,0007,0008,0010,0011 المراب أبالا المتعالم والمناز المراز والمنافرة والأسام والمناط الماء ومعام والمنازون والوالوالوالوا MANDLING CODE(S): 1501,502,723,731,736,740,741,745,757 - CRITERIATFOR WASTE PROPERTIES -FLASH PBINT: CHIN): N/A:F. PH (MIN): - 0.1 PH: (MAX): 4.0 CRITERIA: FOR WASTE CONSTITUENTS: CODE: NAME MAX LIMITS LO032: CBPPER 0034 % VDL 0040. SULFURIC ACID 0020 % VOL' **#158**. SULFATES - 6038 T VOL 6131(TOTAL SOLEDS: 0090 % VDL 00011 TWATER " 0090 Z: VDL DOZ4: ARSENIC 1000 PPM .0036. BARTUM' 0500 PPM 0190 PPM .0031: CHROMIUM. 8508 PPM 9030 LEAD' ... 1000 PPM 0028 SELENIUH @500 PPM. 00343 SILVER: ----DIDD PPM: @282T SUDIUM PERSULFATE, CAS 7775-27 . 0010 2 VOL: 0283 POTASSION PERSUE FATE - CAS: 7727 0010, 2: VOL: 0281: AMMONIUM PERSULFATE, ~ CAS 7727-.0010 % ADT: 0284 HYDROGEN PEROXIDE .0005 % VOL 0048 : IRON .0001 % WT 0033 NICKEL ... 0033 2000 PPM 0002 % WT

DISPOSAL METHOD: RECYCLE, REUSE, OR RECLAMATION

TREATMENT METHOD: METALS RECOVERY

2200 Churchill Road, Springfield, IL 62794-9276

GENERIC WASTE STREAM PERMIT ATTACHMENT

SITE CDDE: 1970250002

GENERIC W/S PERMIT NUMBER: 000230

SITE NAME: C P INDREANICS

SUP/OP PERMIT NUMBER: 1984021SP

DATE RECEIVED: 01/05/90

APPROVAL DATE: 03/09/89

EXPIRATION DATE: 03/09/94

GENERIC WASTE CODE: 0007

GENERIC WASTE WARE: WASTES FROM ELECTROPLATING OPERATIONS

WASTE CLASSIFICATION: HAZARDOUS NOT SUBJECT TO FEE

USEPA HAZARDOUS WASTE NUMBER(S): D002,0004,0005,0006,0007,0008,0010

HANDLING CODE(S): S01, S02, T23, T31, T36, T40, T41, T45

----- CRITERIA FOR WASTE PROPERTIES

FLASH POINT (MIN): N/A F PH (MIN): 0.1 PH (MAX): 14.0

	CRITERIA F	DR WASTE	CONSTITUENTS		
CODE	NARE			MAX L	STIMI
0033 N	ICKEL			0050	Z VOL
0149 C	ARBONATES			0050	% VOL
	OTAL SOLIDS			0100	X VOL
0001 k	ATER		•	0090	Z VOL
0146 B	DRIC ACID		•	0005	# ADT
	ULFATES	*	· ·		I ADT
0130 C	HLORIDE				# AGF
	ULFAMIC ACI	_		0040	X ADT
0147 N	ICKEL SULFA	MATE		0022	Z ADT
	OPPER			0050	Z ADT
0024 A	RSENIC			1000	PPM
	ARIUM			0500	PPM .
	ADHIUM		•	0100	PPH
	EAD			1000	PPM
0031 C	HROMIUM			0004	IMI
	SELENIUM			0500	PPM
	SILVER			0100	PPM .
	COBALT		J	0010	% WT
	RON		_	0020	% WT.
	1ANGANESE	•		0020	% WT
	TIN			0002	% WT -
0035 Z	ZINC			0020	% WT

2200 Churchill Read, Springfield, IL 62794-9276

GENERIC WASTE STREAM PERMIT ATTACHMENT

SITE CODE: 1970250002

GENERIC W/S PERMIT NUMBER: 000068

SITE NAME: C P INORGANICS

SUP/OP PERMIT NUMBER: 19840425P

DATE RECEIVED: 03/13/84

APPROVAL DATE: 05/07/84

EXPIRATION DATE: 03/09/94

SENERIC WASTE CODE: 0014

GENERIC WASTE NAME: CORROSIVE METAL CLEANING WASHES AND STRIPPING BATHS

WASTE CLASSIFICATION: HAZARDOUS NOT SUBJECT TO FEE

USEPA HAZARDOUS HASTE NUMBER(S): 0002,0004,0005,0006,0007,0008,0010

HANDLING CODE(S): S01,S02,T23,T31,T36,T40,T41,T45

CRITERIA FOR WASTE PROPERTIES -

FLASH POINT (MIH): N/A F PH (MIN): 0.1 PH (MAX): 14.0

	CRITERIA FOR	WASTE	CONSTITUENT	s	
CODE	NAME		•		INITS
0067	NITRATES			0035	7 VOL
0033	NICKEL	,		0035	I VOL
0032	COPPER			0025	% YOL
0041	NITRIC ACID	•	200	0025	Z VOL
0131	TOTAL SOLIOS			0860	
0040	SULFURIC ACID			0020	% YOL
0150.	SULFATES			0020.	Z YOŁ
0227	MURIATIC ACID				Z VOL
0024	ARSENIC			1000	PPM
0036	BARIUM			0500	PPH
0025	CADHIUM		•	0180	PPM
	CHROMIUM			0004	I HT
0030.	LEAD			1000.	PPM
0001	WATER			8090.	% VOL
0130	CHLORIDE			0035	Z ADF
0028	SELENIUM · -	÷ • ·		0500	PPM
0034	SILVER			0100	PPM
0042	PHOSPHORIC ACID .		•	0020	% VOL
	PHOSPHATES			0020	% VOL
0287	AMMONIUM BIFLOURI	DE	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	0020	% VOL
0068	FLOURIDES			0020	% VOL
0284	HYDROGEN PEROXIDE			0020	% VOL
0172	UREA			0005	% VOL
0048	IRON			0030	% VOL
0173	TIN	,		0010	% VOL
0035	ZINC		•	0010	% VOL

2200 Churchill Road, Springfield, IL 62794-9276

GENERIC WASTE STREAM PERMIT ATTACHMENT

SITE CODE: 1970250002

GENERIC W/S PERMIT NUMBER: 000078

SITE NAME: C P INORGANICS

SUP/OP PERMIT NUMBER: 19840425P

DATE RECEIVED: 06/04/85

APPROVAL DATE: 06/14/85 EXPIRATION DATE: 03/09/94

GENERIC WASTE CODE: 0016

GENERIC WASTE NAME: SPENT FERRIC CHLORIDE

WASTE CLASSIFICATION: HAZARDOUS NOT SUBJECT TO FEE

USEPA HAZARDOUS WASTE NUMBER(S): DOD2, DO04, DO05, D006, D007, D008, D010

HANDLING CODE(S): S01,502

FLASH POINT (MIN): N/A F PH (MIN): N/A PH (MAX): 14-0

	CRITERIA FOR WASTE	CONSTITUENTS	
CODE	NAME	and the second s	LIMITS
∵0046	FERRIC CHLORIDE	0040	
0347	COPPER CHLORIDE	0010	
0032	COPPER	0009	
003 <i>5</i>	ZINC	0003	
0030	LEAD	· · · · · · · · · · · · · · · · · · ·	•
0031	CHRONIUM	1000	PPA
		€002	I HI
0024	ARSENIC		.
0036	BARIUM	1000	PPM
0025	CADMIUM	0500	PPM
0028	SELENTUM	0100	PPM
0026		0 500	PPM
	SILVER	0100	PPA
0001	HATER	0090	2 41
0039	HYDROCHLORIC ACID	0020	Z WT
0048	IRDN	0030	I VI
0033	NICKEL-	0005	% WT



GENERIC WASTE STREAM PERMIT ATTACHMENT

SITE CDDE: 1970250002

GENERIC W/S PERMIT NUMBER: 000099

SITE MANE: C P INDREAMICS

SUP/OP PERMIT NUMBER: 19840425P

DATE RECEIVED: 08/08/86

"APPROVAL DATE: 09/33/86 EXPIRATION DATE: G3/09/94

GENERIC WASTE CODE: 3056

SEMERIC WASTE MAME: SPENT FIMISHING SOLUTION FROM PRINTED CIRCUIT BOARDS

WASTE CLASSIFICATION: HAZARDOUS NOT SUBJECT TO FEE

USEPA HAZARDOUS WASTE MUMBER(5): DD08

HANDLING CODE(S): T23,T40,T52,T57

FLASH POINT (MIN): N/A F PH (MIN): N/A PH (MAX): 2.1

-	CRITERIA FOR WASTE	CONSTITUENTS
CODE	NAME	MAX LIMITS
8281	WATER	0083 % VDL
9171	AMMONIUM CHLORIDE	0013 % VOL
0172	UREA	0003 % AOF
0032	COPPER	0140. PPM
0030	LEAD	OBOS PPM
9173	TIN	0600 PPM
0131	TOTAL SOLIDS	0017 % VOL
0001	WATER	0083

DISPOSAL METHOD: RECYCLE, REUSE, OR RECLAMATION

TREATMENT METHODS METALS RECOVERY



GENERIC WASTE STREAM PERMIT ATTACHMENT

SITE CODE: 1970250002

GENERIC W/S PERMIT MUMBER: DOCADA

SITE NAME: C P INORGANICS

SUP/OP PERMIT NUMBER: 1984042SP

DATE RECEIVED: 03/24/86

APPROVAL DATE: 06/06/86 EXPIRATION DATE: 03/09/94

GENERIC WASTE CODE: 5035

GENERIC WASTE NAME: COPPER METAL RECOVERY FROM PLATING AND ETCHING SOLUTION

WASTE CLASSIFICATION: MON-HAZARDOUS NOT SUBJECT TO FEE

IEPA HOM-MAZARO MASTE MUMBER(5): 0005

HANDLING CDDE(S): T23,T31,T36,T40,T41,T45,T57

-- CRITERIA FOR WASTE PROPERTIES 2.1

FLASH POINT (MIN): N/A F

PH (MIN):

PH (MAX):

----- CRITERIA FOR WASTE CONSTITUENTS -----MAX LIMITS CODE MARE 0890. % MT COPFER 6032 0030 % ADT 1609 WATER 0090. % VBL 0131 TOTAL SOLIDS 0010 % VOL 0130. CHLORIDE

DISPOSAL METHOD: RECYCLE, REUSE, OR RECLAMATION

TREATMENT METHOD: METALS RECOVERY

2200 Churchill Road, Springfield, IL 62794-9276

GENERIC WASTE STREAM PERHIT ATTACHMENT

SITE CODE: 1970250002

GENERIC W/S PERMIT NUMBER: 000067

SITE NAME: C P INORGANICS

SUP/OP PERMIT NUMBER: 1984042SP

DATE RECEIVED: 03/13/84

APPROVAL DATE: 05/07/84
EXPIRATION DATE: 03/09/94

GENERIC WASTE CODE: 0040

GENERIC WASTE NAME: NICKEL METAL RECOVERY FROM PLATING AND ETCHING SOLUTION

WASTE CLASSIFICATION: NON-HAZARDOUS NOT SUBJECT TO FEE

TEPA NON-HAZARD WASTE NUMBER(S): 0005

HANDLING CODE(S): S01,S02,T23,T31,T36,T40,T41,T45

FLASH POINT (MIN): N/A F PH (MIN): 2-1 PH (MAY): 12 A

FLASH POINT (MIN): N/A F PH (MIN): 2.1 PH (MAX): 12.

	CKTIEKTY LOK MYZIF CONZITIOENI	2
CODE	NAME	MAX LIMITS
0146	BORIC ACID	0005 % VDL
0147	NICKEL SULFAHATE	0030 % VOL
0032	COPPER	.0010 % VOL
0285	COBALT, CAS 7440-48-4	0010 % WT
0048	IRON	0020 % WT
0119	MANGANESE	0020 % WT
0173	TIN	0002 % NT
0035	ZIHC	0020 I WT
0033	NICKEL	0050 % YOL
0149	CARBONATES	0050 % VOL
0131	TOTAL SOLIDS	0100 % VOL
0001	WATER	0090 % VOL
0150	SULFATES	0040 % ADF
0130	CHLORIDE	0040 % VOL
0148	SULFAMIC ACID	0040 % VDL
· - / -	THE CONTRACTOR OF THE CONTRACT	Onto W ATIE

DISPOSAL METHOD: RECYCLE, REUSE, OR RECLAMATION

TREATMENT METHOD: METALS RECOVERY

2200 Churchill Road, Springfield, IL 62794-9276

GENERIC WASTE STREAM PERMIT ATTACHHENT

SITE CODE: 1970250002

GENERIC W/S PERMIT NUMBER: 000066

SITE NAME: C P INDREANICS

SUP/OP PERMIT NUMBER: 19840425P

DATE RECEIVED: 03/13/84

APPROVAL DATE: 05/07/84 EXPIRATION DATE: 03/09/94

GENERIC WASTE CODE: 0128

GENERIC WASTE NAME: COPPER SULFATE (SOLID OR LIQUID)

WASTE CLASSIFICATION: NON-HAZARDOUS NOT SUBJECT TO FEE

IEPA NON-HAZARD WASTE NUMBER(S): 0005

HANDLING CODE(S): S01,S02,T23,T31,T36,T40,T41,T45

FLASH POINT (MIN): N/A F PH (MIN): 2.1 PH (MAX): 12.4

----- CRITERIA FOR WASTE CONSTITUENTS ---CODE NAME MAX LIMITS 0032 COPPER 0025 % VOL 0040 SULFURIC ACID 0005 % YOL 0150 SULFATES 0070 % VOL 0131 TOTAL SOLIDS 0095 % VOL 0001 WATER

DISPOSAL METHOD: RECYCLE, REUSE, OR RECLAMATION

TREATMENT METHOD: METALS RECOVERY

67

C

C HEALTH AND SAFETY PLAN

SITE SAFETY PLAN

RFI WORK PLAN - PHASE I PHIBRO-TECH, INC. JOLIET, ILLINOIS

MARCH 1994

PREPARED FOR: PHIBRO-TECH, INC. JOLIET, ILLINOIS

> PREPARED BY: WARZYN INC. ADDISON, ILLINOIS

SITE SAFETY PLAN (SSP)

SSP REVIEW SIGNATURES

Health and Safety: Date:		
Project Manager:		
Date:		
	KEY PERSONNEL	
Site Manager: Alternate:	Dave Pieczynski	
Site Safety Officer: Alternate:	Dave Pieczynski	

This Site Safety Plan does not supersede or in any way relieve subcontractors of their obligations under any applicable OSHA regulations including 29 CFR 1910: Occupational Safety and Health Standards and 29 CFR 1926: Health and Safety Regulations for Construction.

Warzyn personnel working at the Phibro-Tech, Inc. Site meet the training and medical monitoring requirements of 29 CFR 1910.120: Hazardous Waste Operations and Emergency Response. Documentation of this training and medical surveillance can be obtained upon written request to Warzyn Inc., Corporate Health and Safety Manager, One Science Court, Madison, Wisconsin 53711.

The health and safety procedures set forth in this Site Safety Plan (SSP) are based on the site conditions and chemical hazards known or expected to be present using site data available at the time this SSP was written. This SSP is intended solely for the use of Warzyn personnel during the activities described in this SSP. This SSP is subject to review and revision by Warzyn's Corporate Health and Safety Manager (HSM) or designated alternate when it is deemed necessary by actual Site conditions encountered during the field activities.

SITE SAFETY OFFICER (SSO) RESPONSIBILITIES

The Site Safety Officer (SSO) is responsible for field implementation of this SSP and enforcement of safety rules and regulations. The SSO will handle liaison with subcontractors on matters relating to health and safety. Other site-specific SSO functions include:

- Verify that the property has been cleared for utilities
- Oversee day-to-day implementation of the SSP by subcontractor employees
- Interact with subcontractor project personnel on health and safety matters
- Determine levels of protection
- Provide "refresher" training to new Warzyn and subcontractor site personnel on health and safety matters
- Verify that Warzyn and subcontractor site personnel have received proper training and participate in medical surveillance program
- Inspect and maintain (daily) safety equipment which includes calibration of various instrumentation
- Perform or direct ambient air quality monitoring as warranted
- Modify site SSP as needed and notify appropriate persons of changes
- Investigate and report on-site accidents/incidents

- Verify that Warzyn and subcontractor site personnel are familiar with the hospital route, and that the route map is posted in the work trailer and site vehicles
- Establish detailed procedures and routes for personnel evacuation from the site
- Establish the exclusion, decontamination, and support zones at the site, as necessary and provide means of securing the work area
- Implement confined space entry procedures if under the scope of work and direct entry procedures

The SSO will hold initial startup and daily safety briefings with Warzyn staff and subcontractors. The SSO will complete the comprehensive and daily checklists found in Appendix A.

The SSO will report accidents such as injury, overexposure, or property damage to the HSM, and will consult with the HSM on specific health and safety issues arising over the course of the project.

SITE DESCRIPTION/ HAZARD SUMMARY

SUMMARY OF HAZARDS KNOWN OR SUSPECTED TO BE PRESENT

- · Drummed materials
- · Liquid materials
- · Tanks, aboveground
- Corrosive materials
- Heavy metals
- Inorganic materials
- Temperature stress
- Heavy equipment
- Severe weather
- Dust
- Traffic

SCOPE OF WORK

Soil borings/soil sampling

SITE OVERVIEW

The Phibro-Tech, Inc. facility in Joliet, Illinois is involved in the manufacturing of industrial, agricultural, and specialty metal finishing chemicals. The facility has an RCRA Part B Permit for hazardous waste management which required them to further investigate nine solid waste management units (SWMUs). Only inorganic materials are used at the site and the constituents of concern are metals. Some of

the SWMUs to be investigated are currently active and are used to store hazardous waste.

CHEMICAL HAZARD SUMMARY

Maximum Concentration

Matrix Soil

Compound variety of inorganic

compounds (metal based) Expected

Location

unknown

all SWMUs under investigation

Chemical hazard summary sheets (waste profile sheets) are included in Appendix B.

March 1994 Page 2-2

Phibro-Tech, Inc., Joliet, Illinois

Site Safety Plan

SITE BOUNDARIES AND ENTRANCE/EXIT

SITE AND PROJECT BOUNDARIES

See Appendix C which contains a map of the site indicating:

The boundaries of site and the boundaries of project field activities

PRESENT SITE SECURITY

Fencing is present which should prevent the exposure of unauthorized, unprotected people at the site.

SITE SECURITY UPGRADES NEEDED

At a minimum all areas not already fenced will be marked with yellow caution tape to prevent unauthorized entry into the work area.

Security will be maintained by verbal commands. No unauthorized individuals are allowed within 20 feet of operations.

ZONES OF CONTAMINATION

Zone boundaries do not need to be marked. Generally, the area within 20 feet of the site of field operations is considered the Exclusion Zone.

ENTRY RESTRICTIONS

None.

ENTRANCE TO BE USED

The entrance of Industry Avenue is to be used.

CHECK-IN REQUIRED

All personnel entering or leaving the site must register with the receptionist located at the main office.

WORK HOURS

8:00 AM to 5:00 PM or dawn to dusk, based on field conditions.

WORK DAYS

Monday through Friday

GENERAL SITE HEALTH AND SAFETY CONSIDERATIONS

WEATHER CONDITION RESTRICTIONS

The Site Safety Officer (SSO) has the authority, should severe weather threaten, to place site activities on standby, cease operations and/or evacuate Site as deemed necessary.

Weather conditions on Site cannot be controlled. Site personnel are to be aware of the warnings of impending severe weather and the precautions that are to be taken when severe weather threatens. Refer to the SOP for Severe Weather found in Appendix D.

TEMPERATURE STRESS

Hot or cold weather is generally a consideration at any site and cannot be controlled. Site workers need to be aware of engineering controls which can reduce temperature stress, the signs and symptoms of temperatures stress and first aid measures for victims of temperature stress. Refer to the SOP for Temperature Stress found in Appendix E.

GENERAL SITE HEALTH AND SAFETY RULES

Some general safe work practices apply to all sites. Refer to the SOP for General Site Health and Safety Rules found in Appendix F.

HEAVY EQUIPMENT

Special safety procedures are required when working around operating heavy equipment. Heavy equipment includes, backhoes, scrapers, loaders, bulldozers, trucks and drill rigs. Hazards associated with operating heavy equipment include obstructed view, moving parts, rollover, overhead clearance, noise and dust.

- Heavy equipment should be operated by trained, authorized personnel.
- Equipment should be inspected daily.
- Equipment should be equipped with backing alarms and if driven over uneven terrain rollover protection and seat belts.
- Personnel working on the equipment or in the area should wear safety glasses with side shields, steel-toe safety boots, and hard hats.
- A spotter should be used when backing up to avoid blind spots.
- All guards should be in place and safety switches should be operational.
- Drill rigs and other equipment with tall booms should, at a minimum, remain at least 10 ft from overhead power lines and should not be moved with the boom raised.

TRAFFIC

Personnel in a roadway or within 10 ft of a roadway during work activities must wear orange safety vests. Proper barricades and warning signs and/or cones are required.

BIOLOGICAL HAZARDS

There is a potential for additional hazards at the site which include biological hazards, plants, insects, and animals.

Biological - Occupationally induced infection can happen in any
occupation as a result of exposure to bacteria, viruses, fungi, or parasites.
A simple laceration from a sharp edge can become secondarily infected
with staphylococci or streptococci. A thorn, a wood splinter, or a metal
slug acting as a foreign body can pave the way for secondary infection of

Site Safety Plan

March 1994

Phibro-Tech, Inc., Joliet, Illinois

the skin. Cuts, scrapes, or other lacerations should be cleaned, disinfected, and dressed immediately following standard first aid procedures.

- Plants A broad variety of plants and wood cause injury to skin through primary irritation or allergic sensitization. Although the chemical identity of many plant toxins has not been established, it is well known that an irritant or allergenic agent can be present in the leaves, stems, flowers, bark, and other components of the plant. Examples include poison ivy and sumac. Personnel will be wearing long pants at the site. If work is to be performed in areas with poison ivy or sumac, contact with the plant should be avoided. The SSO will identify locations where poisonous plants are present during daily site briefings. Personnel may need to wear gloves or chemical resistant clothing (Tyvek). If contact is made with poison plants, remove contaminated clothing, wash all exposed areas with soap and water followed by rubbing alcohol. Apply calamine or other soothing skin location. Seek medial advice if severe reaction occurs.
- Insects Insect bites and stings can be serious to hypersensitive persons and even deadly depending on the type of insect. Examples include bees, wasps, hornets, brown recluse spiders, and ticks. Lyme disease is a tick-borne disease and starts out with flu-like symptoms but may lead to arthritis and serious nerve and heart damage. Avoid tall grassy areas or other areas of thick vegetation. If work is performed in these areas, personnel should wear light colored clothing, tape pant's cuffs around their ankles, use a commercially available repellant and check for ticks regularly.
- Animals Animal bites are a concern because of the potential for the animal to carry the rabies virus, which attacks the nervous system when transmitted through the bite of a rabid animal. If an animal bite occurs the victim must be taken to the nearest medical facility immediately.

EXCAVATIONS

Excavations are not anticipated to be present at the site. If open excavations are encountered personnel will refrain from entering them.

UTILITIES

All utilities must be cleared before performing any intrusive activities. The SSO will verify that utilities have been cleared before work begins at the site.

NOISE

Hearing protection is required when working in close proximity to heavy equipment, the level of noise interferes with communications or the sound level exceeds 85 dB. Generally, if you cannot hear someone speaking at a normal conversational level when they are 3 ft from you, you need hearing protection. Hearing protection is required within 50 ft of the following operations:

- Driving casing or the split spoon sampler
- · During core drilling
- Use of power tools
- Use of air compressor
- Use of other machinery

CONFINED SPACES

Confined space entry is not allowed in the scope of this SSP. Should a confined space entry situation be encountered, the Health and Safety Manager must be notified and provisions for confined space entry must be added to this SSP.

CHEMICAL HAZARD EVALUATION/ AIR MONITORING STRATEGY

AIR MONITORING STRATEGY

Air monitoring is not required during field activities conducted at this site.

Dust

Dust generation would be expected during boring through concrete and gravel areas. Dust may contain hazardous materials and is an inhalation hazard. The SSO will upgrade to Level C if visible dust is observed.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

Level D

- Work Uniform
- Safety Boots Steel toe/steel shank
- Hard Hat
- Safety Glasses with side shields*
- Face Shield*
- Hearing Protection*

Level D-Modified

- Work Uniform
- Safety Boots Steel toe/steel shank
- Hard Hat
- Safety Glasses with side shields*
- Face Shield*
- Hearing Protection*
- Outer Gloves MOC:____
- Boot Covers MOC:_____
- Chemical Resistant Clothing MOC:
- Inner Gloves MOC:____

Level C

- Work Uniform
- Hard Hat
- Safety Boots Steel toe/steel shank
- · Face Shield*
- Hearing Protection*
- Outer Gloves MOC:
- Boot Covers MOC:______
- Chemical Resistant Clothing MOC:_____
- Full-Face Air Purifying Respirator
- Respirator Cartridge Type:
- Inner Gloves MOC:____

These include:

- Sawing metal or concrete
- Grinding or sanding operations
- In the vicinity of drilling operations when mud and liquids are sprayed in the work area
- When opening drums or tanks when hazardous materials under pressure are potentially present
- · Cutting with a torch or when welding

Phibro-Tech, Inc., Joliet, Illinois

TASK SPECIFIC LEVELS OF PROTECTION

Task - Soil Boring/Sampling

Entry-Level D Upgrade-Level D-Modified

ROUTINE DECONTAMINATION

Use the SOP for Decontamination at the highest level of protection used on Site each day, found in Appendix G.

INVESTIGATION DERIVED MATERIALS DISPOSAL

DISPOSABLE CLOTHING/EQUIPMENT

Drum and label the materials and leave on-site.

DRILL CUTTINGS

Drill cuttings will be visually screened for the presence of metal compounds and retained in 55-gallon drums on-site. Drums will be labeled as needed to identify contents and source locations. Cuttings will be disposed of in accordance with state and federal regulations.

DRILLING/DECONTAMINATION

Water generated during drilling operations and decontamination solutions will be visually screened and retained in 55-gallon drums on-site. Drums will be labeled to identify contents if applicable. Drum contents will be disposed of in accordance with state and federal regulations.

EMERGENCY INFORMATION

	Mobile		Contact
Address	<u>Telephone</u>	Telephone	Person
Ambulance	*999 or 0	911	
Hospital E/R		815/740-7050	
Poison Control		800/942-5969	
Police	*999 or 0	911	•
Fire	*999 or 0	911	
Client			
EPA/other agency		217/782-3637	
Utilities J.U.L.I.E.		800/892-0123	
Spill Response		815/740-0911	

Note: When using a mobile telephone *999 only works on state highways, otherwise dial "0" for operator assistance to direct you to the appropriate emergency service.

Emergency Contacts	Name	Business Phone	Home Phone
Project Manager	Martin Hamper	708/691-5065	312/284-7332
Site Manager	Dave Pieczynski	708/691-5069	
H&S Coordinator	Jody Bernstein	708/691-5027	
H&S Manager	Erik Goplin	608/231-4747	608/437-4879

EMERGENCY ROUTES

See Appendix C for a map showing the route to the hospital/clinic.

Driving Directions

West on Industry Avenue to Route 53, Route 53 south to Jackson Street, Jackson Street (Route 6), east to Walnut Street, Walnut Street south to Silver Cross Hospital.

Emergency routes are to be verified by the SSO and communicated to site personnel prior to site activities.

EMERGENCY PROCEDURES

Emergency Equipment

Staff should have a standard first aid kit and 5 lb ABC fire extinguisher at the site.

Emergency Decontamination

Refer to the SOP for Emergency Decontamination found in Appendix G.

Site Evacuation

The evacuation signal for the site is three short blasts of a horn, either on a motor vehicle or an air horn.

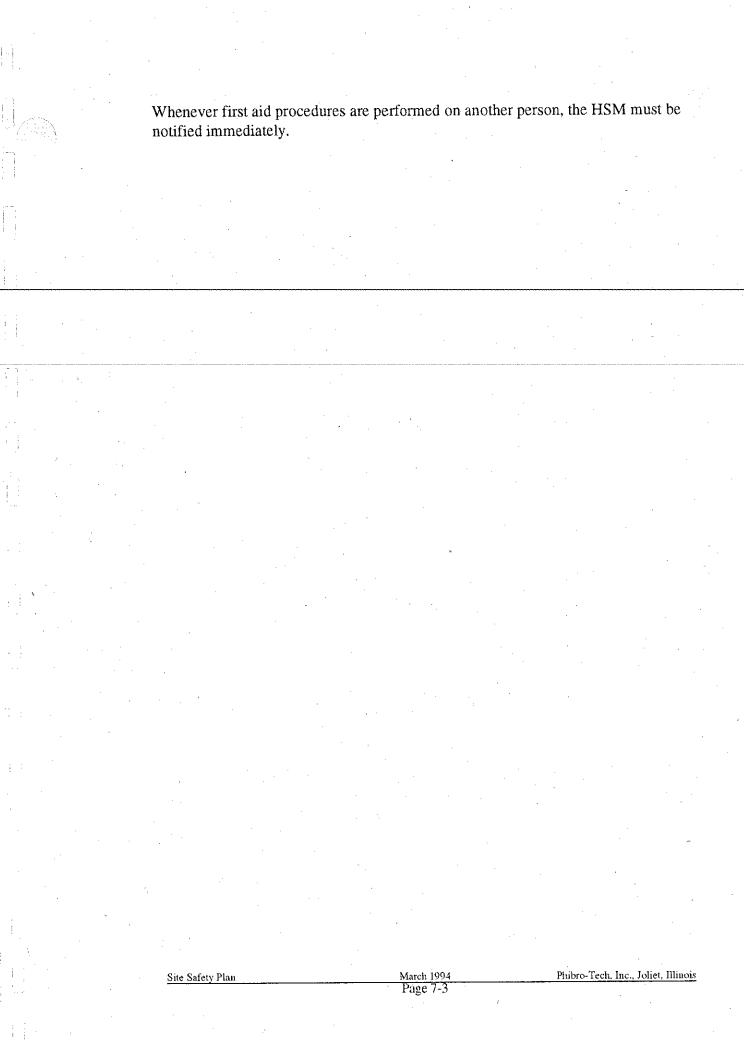
Evacuation routes and assembly points are to be determined at the site. All site workers are to be notified of routes and assembly points by the SSO during the daily safety meetings.

Refer to the SOP for Emergency Response found in Appendix H for more details on site evacuation.

First Aid

Refer to the SOP for Chemical First Aid found in Appendix I for general chemical first aid procedures. Standard first aid and CPR procedures should be used in other medical emergencies. Each first aid kit contains protection equipment that must be worn while performing first aid and CPR. This includes:

- Disposable gloves
- · Disposable mouth-to-mouth resuscitator
- Safety goggles/face mask
- Disposable overgarment



NAMES AND SIGNATURES

All Warzyn employees working on or visiting this site are to sign below, indicating that they have read this SSP, understand its contents, have been given opportunity to discuss its contents with the SSO and agree to abide by its requirements.

The supervisors of all subcontractors are to sign below, indicating that they have read this SSP, understand its contents, and have been given and opportunity to discuss its contents with the SSO.

Date	Name	Employer	Signature
· ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
			-
		·	
			
			
			
		·	
	· · · · · · · · · · · · · · · · · · ·		

It is the responsibility of the Site Safety Officer (SSO) to have a completed and signed copy of this SSP returned to the H&S Coordinator for inclusion in the project file.

KAW/jrs/ [chi 652 50]

A

SAFETY CHECKLISTS

SITE HEALTH AND SAFETY CHECKLIST - COMPREHENSIVE

GENERAL INFORMATION

•	Date:	Checklist completed by:
	Project number:	Project name:
	Location:	•
	Site Manager:	m. a c c c c c c c c c c c c c c c c c c
	Weather: [] windy	[] fair [] cloudy [] dry [] rain [] sleet
		temperature:°C/°F
		•
		SAFETY INFORMATION
	[]Yes []No []N/A	Signed SSP on-site:
		[]available [] posted
	[]Yes []No []N/A	SSP reviewed and signed by necessary personnel.
-	[] []	
·	[]Yes []No []N/A	MSDSs on site for all hazardous materials brought to site by
		personnel.
		[] available [] posted
	•	
	[]Yes []No []N/A	Designated SSO present.
. ,	[]Yes []No []N/A	Site safety briefing held.
		Date of last briefing:/_/_
	\$	On-site Warzyn personnel meet OSHA requirements for:
	[]Yes []No []N/A	H&S training
	[]Yes []No []N/A	Medical surveillance
	[]Yes []No []N/A	Respirator fit test
		On-site Warzyn subcontractors meet OSHA requirements for:
	[]Yes []No []N/A	H&S training
	[]Yes []No []N/A	Medical surveillance
	[]Yes []No []N/A	Respirator fit test
	[]Yes []No []N/A	Work being done in compliance with SSP and SOPs.
	[]Yes []No []N/A	Equipment specified in SSP available.
	[]Yes []No []N/A	Equipment specified in SSP in working order.
	[]Yes []No []N/A	Equipment manuals available.
	[]Yes []No []N/A	Monitoring equipment calibrated.
	[]Yes []No []N/A	Calibration records available.

	[]Yes []No []N/A	Responsible personnel know how to operate monitoring equipment.
	[]Yes []No []N/A	Adequate equipment/materials inventory available.
	[]Yes []No []N/A	Radiation monitoring badges being worn by all personnel working with nuclear density gauges.
	F 187 F 187 F 187/A	Zones established and enforced: • Exclusion
	[]Yes []No []N/A —	
	[]Yes []No []N/A	• Decontamination
	[]Yes []No []N/A	Support/clean
		Proper decontamination procedures:
	[]Yes []No []N/A	• Set up
	[]Yes []No []N/A	• Enforced
•	[] res [] no [] n/A	Linoiccu
•	[]Yes []No []N/A	Emergency telephone numbers posted.
	[]Yes []No []N/A	Emergency route to hospital posted.
	[]Yes []No []N/A	Local officials notified.
	[]Yes []No []N/A	At least one person on-site has current first aid and CPR certification.
		Appropriate first aid materials on site:
	[]Yes []No []N/A	• 15 minute eye wash
	[]Yes []No []N/A	First aid kit
	[]Yes []No []N/A	Special emergency procedures implemented.
	SAFETY	Y EQUIPMENT UTILIZED BY FIELD CREW
	[]Yes []No []N/A	Field/Health and Safety Equipment Checklists complete and current.
		COMMENTS
.	Effectiveness of SSP:	

HEALTH AND SAFETY MEETING ATTENDANCE Date Name Employer Signature		Deficiencie	es noted: _				-			
HEALTH AND SAFETY MEETING ATTENDANCE										
HEALTH AND SAFETY MEETING ATTENDANCE		Remedial			•					
	······································									
Date Name Employer Signature			HEA	LTH AN	ID SAF	ЕТҮ МІ	EETIN(G ATTE	NDANCE	-
		Date	Name		:	Employ	er/er		Signature	
				· ·						
										
		· ·	· · · · · · · · · · · · · · · · · · ·					J		
						:				
	·									
		<u> </u>								

SITE HEALTH AND SAFETY CHECKLIST - DAILY

	Date:	Checkist completed by:
	Project number:	Project name:
	Location:	
	Site Manager:	Site Safety Officer:
	•	[] fair [] cloudy [] dry [] rain [] sleet
	[] snow	temperature:°C/°F
	·	
	Topic covered?	
	[]Yes []No []N/A	Site hazards
	[]Yes []No []N/A	
	[]Yes []No []N/A	
	[]Yes []No []N/A	•
-	[]Yes []No []N/A	
	[]Yes []No []N/A	
-	[]Yes []No []N/A	• "Buddy" system
	[]Yes []No []N/	Site Safety Plan
:	[]Yes []No []N/	· · · · · · · · · · · · · · · · · · ·
	[]Yes []No []N/.	
	[]Yes []No []N/.	
	,	
	[]Yes []No []N/.	
	[]Yes []No []N/.	<u> </u>
	[]Yes []No []N/	** * * *
	[]Yes []No []N/	Proper donning/doffing techniques
	[]Yes []No []N/	A Decontamination
	[]Yes []No []N/	
	[]Yes []No []N/	· · · · · · · · · · · · · · · · · · ·
	[]Yes []No []N/	
	[]Yes []No []N/	± *
	[]Yes []No []N/	
	[]Yes []No []N/	A • Personal hygiene

Health and Safety Meeting Attendance

Date	Name	Employer	Signature
			i
· · ·			

B

CHEMICAL HAZARD SUMMARY INFORMATION



CP/PhibroChem
A Division of Philop Brothers Chemicals, Inc.
One Parker Plaza, Fort Lee, N.J. 07024

TELEPHONE: (201) 944-6020

WU:710-991-0289

RCA: 277820

FAX: (201) 944-7911

LIQUID NICKEL CHLORIDE EN-2 GRADE NiCl2.6H2O, 6 pounds per gallon

Nickel Chloride	Hexabydra	te .		 	. 6 lbs/gal
Nickel				 _	13.25%
- ·	• • • •				
Copper			• • •	 	. 0.0005%
Iron				 	0.0005%
_					
Zinc				 	0.0005%
Calcium and Magr	Jesimw (as	Calciu	. (mu	 <i>.</i> .	. 0.0043%
Specific Gravity	•				1.335-1.345
Appearance .				 . Clear,	green liquid

PACKAGING: 5 gal pails and 55 gal drums, non-returnable C.A.S. No. 7718-54-9, pg. 157

The information herein is believed to be reliable. warranty, express or implied, is made as to its accuracy or completeness and none is made as to the fitness of this material for any purpose. The manufacturer shall not be liable for damages to person or property resulting from its use. Nothing herein shall be construed as a recommendation for use in violation of any patent.



CP/PhiloroChem A Division of Philop Brothers Chemicals, Inc. One Parker Plaza, Fort Lee, N.J. 07024

TELEPHONE: (201) 944-6020

WU: 710-991-0289

RCA: 277820

FAX: (201) 944-7911

LIQUID NICKEL CHLORIDE EN-2 GRADE MiCl2.6H2O, 6 pounds per gallon

TYPICAL ANALYSIS

Nickel Chloride	. Hexahydra	te .				. 6 lbs/gal
Cobalt						0.01%
Chromium						
Copper	• • • • •					
	• • • • •	• • •	• •			0.0005%
Iron				• *• • •		0.0005%
Manganese						
.=	• • • • •					
Zinc						. 0.0005%
Calcium and Mag	nesium (as	Calci	um) .			0.0043%
Specific Gravit	у					1.335-1.345
Appearance .					. Clear,	green liquid

PACKAGING: 5 gal pails and 55 gal drums, non-returnable C.A.S. No. 7718-54-9, pg. 157

The information herein is believed to be reliable. However, no warranty, express or implied, is made as to its accuracy or completeness and none is made as to the fitness of this material for any purpose. The manufacturer shall not be liable for damages to person or property resulting from its use. Nothing herein shall be construed as a recommendation for use in violation of any patent.



CP/PhiloroChem

A Division of Philipp Brothers Chemicals. Inc.

One Parker Plaza, Fort Lee, N.J. 07024

TELEPHONE: (201) 944-6020

RCA: 277820

WU: 710-991-0289

FAX: (201) 944-7911

LIQUID NICKEL SULFATE EN-1 GRADE NiSO4.6H2O, 5 lbs per gallon

TYPICAL ANALYSIS

Assay (as Nickel	Sulfate Hexahydrate)	5 lbs/gal
Nickel		10.05%
Cobalt		0.01%
Iron		0.0004%
Chromium		0.0002%
Copper		0.0003%
īead		0.0003%
Zinc	•	0.0003%
Manganese		0.0003%
Cadmium		0.002%
Specific Gravity	•	1.340
Appearance	*	Clear, green liquid

PACKAGING: 5 gallon pails and 55 gallon drums,

all plastic, non-returnable

NOTE: Store above 50oF (10oC) to avoid crystallization.

C.A.S. No. 10101-97-0

The information herein is believed to be reliable. However, warranty, express or implied, is made as to its accuracy completeness and none is made as to the fitness of this material for any purpose. The manufacturer shall not be liable for damages to person or property resulting from its use. Nothing herein shall be construed as a recommendation for use in violation of any patent.



CP/PhiloroChem A Division of Philipp Brothers Chemicals, Inc. One Parker Plaza, Fort Lee, N.J. 07024

TELEPHONE: (201) 944-6020

RCA: 277820

WU: 710-991-0289

FAX: (201) 944-7911

LIQUID NICKEL SULFATE EN-1 GRADE NiSO4.6H2O, 5 lbs per gallon

TYPICAL ANALYSIS

Assay (as Nickel	Sulfate	Hexahydrate)	5 lbs/gal
Nickel		•	10.05%
Cobalt		•	0.01%
Iron	•		0.0004%
Chromium			0.0002%
Copper			ა.0003%
Lead			0.0003%
Zinc			0.0003%
Manganese			ე. 0003%
Cadmium		· · · · · · · · · · · · · · · · · · ·	0.002%
Specific Gravity			1.340
Appearance	•		Clear, green liquid

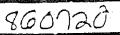
5 gallon pails and 55 gallon drums,

all plastic, non-returnable

Store above 50oF (10oC) to avoid crystallization.

C.A.S. No. 10101-97-0

The information herein is believed to be reliable. warranty, express or implied, is made as to its accuracy or completeness and none is made as to the fitness of this material for The manufacturer shall not be liable for damages to any purpose. person or property resulting from its use. Nothing herein shall be construed as a recommendation for use in violation of any patent.





SPECIAL WASTE ANALYSIS REPORT



WASTE PROFILE SHEET CODE

This Report is intended for the sole use and benefit of Waste Management and its companies. No representation concerning significance of the reported data is made to any other person or entity.

TD A 8 2 6 3 3 RVD

LABORATORY PHONE:	(312) 891-1500	OENERATOR C P Inorganics CITY & STATE Industry Ave., Joliet, 11. 60435 WASTE HAME Metal Hydroxide PROPOSED SITE CID #2
LAS SAMPLE NUMBER A CERTHICATION: Except a acujoment specified or so	BEIGHED: 11556-3	CERTIFICATION OF REP. SAMPLE OBTAINED? TYPES ON NO Describe the supervision, using sample preparation and analytical methods and analytical the Evaluation of Solid Was to, Physical/Chemical Methods," SW 544, USEPA Diffice of Solid Was to, This Isodorstory losowere.
DATE OF REPORT		signatur: Deboah Menga

TEST	TOTAL AS RECEIVED		TEST	RECEIVED	TEST	TOTAL AS RECEIVED	TO VICTY	TEXTENTED WAS IN TOXICITY
ECIFIC GRAVITY	 	PHENOLS, m	n g/l	10.0	ARSENIC, As As, 179/1	50.4	, !,	<u> </u>
(AS RECEIVED)		DIL & GREAS		1	BARIUM, as Ba, mg/l	34.1		
H (10% SOLUTION)	12.0	PC8's, mg/l		1	CADMIUM, as Cd. mg/l	0.39	0.01	1
			ANIC CARBON (TOC), mg/l	+===	CHROMIUM, TUTAL 25 Ct, mg/l	84.9	0.05	
HION SOLUTION WITH CHCL1 EXTRACTION)			ANIC HALOGEN (TOX), mg/l		HEXAVALENT CHROMIUM, # (Cr+4);			1
		C-56, mg/l	:		COPPER, as Cu, mg/l	12400g	227.	
CIDITY, 94 25		TDI, mg/l			IRON, as Fe, mg/l			:
LKALINITY, % as Ca (OH) 2	8.2	и втиль.		-	LEAD, as Pb. mg/l	255.	0.16	ó 📗
NH40H		CHLORINE,	ma/l	i	MERCURY, as Hg, mg/l	10.044		
TOTAL SOLIDS & 105 °C. %		4 SULFUR, m			NICKEL, 25 Nr. mg/l	5,000	9.52	2
TOTAL DISSOLVED SOLIOS, mg/l	125.	WATER CON			SELENIUM, as Se, mg/l	0.39		
TOTAL SUSPENDED SOLIDS. %	1		SOLVENTS.%		SILVER, as Ag, mg/l	-5.04	0.04	4
ASH CONTENT & 550°C, %	52.2		OCT ESTABLES	+	ZINC, as Zn. mg/l	2210		
SU COMIENT & SIG AT	+	1		_			<u> </u>	
FLASH POINT (C.C.) FF	+	+					1	
FLASH POINT (C.C.) of	+	+						1
FLASH POINT (O.C.) % SOLID	>212°	<u></u>		-			İ	
LASH Pulm ((0.0.) - 000.0	1	1		1	ENDRIN, mo/I			-
NITROGEN AMMONIA, 25 N. mg/l				1	LINDANE, mg/l	-		
TOTAL KJELDAHL NITROGEN, as N. mg/					METHOXYCHLOR, mg/l			1
CHLORICES, as CI, mg/l	3	PAINT FI	LTER (FREE LIQUIDS) %	PAS			1	
FEMORIDES, as F, mig/L	1		OMETER, TONS/SO, FT.	1	2, 4-D, mg/l			
	-	EDD, mg/			2 4, 5-7P' (SILVEX), 'mg/l	1		1
PHOSPHATE as P. mod.	-	COD, mg/			K	1		<u> </u>
PHOSPHAIE, as P. mg/l	1	1000, 117,	A .		F-			1
TUTAL PHOSPHORUS, as P, mg/l								
SULFATE, 25 SO.), mg/l			COMPATIBLE WIT					
FERROUS IRON, (Fe-7), mg/l		-			PLANT (PUG MILL)	-		
SULFICES (TUTAL), mg/l	1	<u> </u>	COMPATIBLE WIT	TH NON H	AZARDOUS SOLIDIFICATION			
SULFIDES (DISSOLVED), mg/l	42.	·0 [INCOMPATIBLE W	NITH TREA	ATMENT PLANT			
			REASON:		<u>.</u>			-
CYANIDES (TOTAL), mg/l	<u>k10</u> .	.0	·					
CYANIDES (FREE) AT pH < 1.0 AND BOILING FOR 1 HR			PHYSICAL APPE	ARANCE:	Green moist chunky odor.	solid, s	trong	ammon
CYANIDES (FREE) AT pH < 10 AND 150° FOR V1 HR, mg/L			WATER MIX:					37 15
·		5 .NOT T					.!UN	21 3

No representation concerning	ng significa	se and benefit of Wasts Managemen ance of the reported data is made to	P Inord	A SOCI OF WALKY.	FROM ELECT CONTLINES	
LABORATORY PHONE: (312) 64	6-3000			try Ave. Joliet. Il	. 60435	
DATE EASPLE THOSE: (312) 04		MASTE NAME ME	tal Hyd	iroxides		
	/05/91	PHOPOSED SITE_C	ID Land	<u> </u>		 .
LAB BAMPLE HUMBER ASSIGNED	14354			CENTIFICATION OF REP. BANKS.	E OFTU-FEDT (TEE () * 0
	exiyocal deros wed in the Ti	reported below were obtained under my dire- tio lacity's weste analysis plan were weed i	k cougnings agon and set	the surviver Lies processed process to the	neggy assertance coupal but	ALEAF.
-				· · · · · · · · · · · · · · · · · · ·		
	0, 199 am R. I		- l	William K	Narpas	
THE MYRYOGE KIME KILLI		Kar yas	אַעטו		TODA.	·
TEST	TOTAL AG RECEIVED	TEST	AE RECEIVED	TEST	NECENTED TODOCTY	TCLP
SPECIFIC GRAFITY		PHENOS mod	<10.0	ARSENC & AL mod	7.10	<0.1
pH (AS RECEIVED)		OK & GREASE, modi		BARUM, as Bi, mg/l	56.0	
ph (none solution)	11.9	POST ROM	<2.0	CADLETIK, as Cd., mod	190.	<0.10
HTTW NOTTLESO MOTH		TOTAL ORGANIC CAPBON (FOC), mon	-	CLEPOMENIA, TOTAL as Ct. mg/	56.0	<0.10
CHO. EXTRACTION)		TOTAL ORGANIC HALOGEN (TOTO, mg/l		HEXAMILENT CHROMUM, as (C)**, my		5.2
	<u> </u>	C-SS, mg/	-	COPPER, as Cu, mg/l	113,000	5.2
ACOUTY, % ==		TDI, mg/l	 	IPON, as Fe, mg/f LEAD, as Pb, mg/f	410.	0.10
ALKALDATY, WE Ca (OH) 2	3.5	STUM.	1	MANGANESE, as Mr. mort	1410.	0.10
ALKALDATY, % = NH40H	0.2	CHLORINE, mort	 	MERCURY, as Ho, mod-	<0.01	
	10 50	WATER CONTENT, W	 	HICKEL as Ni., mod	1800.	<0.10
TOTAL SOLIOS & 105°C, %	43.30	CHEMIC SOLVENZ (F-CODE SOLVENZ)	1 2121	SELENIUM, as Su, mod	<0.20	
107AL DISSOLVED SOLIDS, mg/l		OFTECTION LIMIT = 1.0 PPM (THOSE DETECTED LISTED BELOW.)	NONE	SLYER, as Aq, mod	24.0	<0.1
ASH CONTENT + SSO*C, %	45.60			THALLIUM, as TI, mpA	`	
AT CONTENT & CONTAIN	143.00		1	ZMC, as Zu, mg/l	12,000	<0.1
RUASH POINT (CC.) 4F (LICUID)	†					
RUSH POINT (O.C.) F (SOUD)	212°					
	1			ENDRIN, mg/l		<u> </u>
MITROSEN AMMAONIA, M. N., mort	1			LINDANE, INDI		
TOTAL KUELDAHL NETROGEK, as N., mg/t		COD WALP TEST		METHOXYCHLOR, mg/l		
CHLORIDES, as CL, mort		PANT FLUER (FREE LIQUIDS) %	Pass	TOXAPHENE, most		<u> </u>
RLUORIDES, as F, mo/f		PENETROMETER, TOKS/SQ. FT.	ļ	2.4-0, mg/l		
MTRATE, M. K. mod.		800, mp5		2.4.5-TP (SILVEQ, mg/l		<u> </u>
PHOSPHATE, as P. mol	<u> </u>	COST MAN				
TOTAL PHOSPHORUS, as P, mg/l	<u> </u>					ــــــــــــــــــــــــــــــــــــــ
SULFIVE, as SOL most	1		4	ALSO, SEE ATTACH	ED ONE (1) A	AGE.
FERROUS IROK, (Fe+1), mg/l	ļ	COMPATIBLE WITH	BIOLOGIC	•		
SULFIDES (NOTAL), mg/l	123. 0					÷
SULFIDES (DISSOUYED), mg/l	<2.0	INCOMPATIBLE WIT	H TREATA	AENT PLANT	•	,
	<10.0	REASON:				
CYANTOES (TOTAL), mg/l	10.0					
COUNTOES (FREE) AT pH < 1.0 AND BOILING FOR 1 HR, mg/l		PHYSICAL APPEAR		Green/Black powde faint ammonia odor		white
TRANSPES (FREE) AT pH < 1.0 AND 150°F FOR YE HR, mg/l		WATER MIY				

WATER MIX:

"NOT TESTED — THE RESULTS REPORTED ARE THE MAXIMUM POSSIBLE EP TOXICITY VALUES BY CALCULATION.

TYPE OF DIGESTION FOR TOTAL HEAVY METALS AHALYSIS: BY GROSS () ASH () BOMB



MO. J. G AND TECHNOLOGIES, INC.

8100 North Austin Avenue Morton Grove, Illinois 60053-3203 708/967-6666 FAX: 708/967-6735

LABORATORY REPORT

17743-A

Waste Management CID Landfill #2 138th St. & I-94 Calumet City, IL.

60409

Report Date: 7/8/91 Sample Received: 6/25/91

Generator: CP Inorganics

Sample Description: Metal Hydroxides

Sample No.: 0261

Profile No.: A82633-14354

	Concentr	ration		Method		
	Found	i In	Adjusted	Detection	Regulatory	
Compounds	Sample	Blank	Concentration	Limit (MDL)	Limit	
1. Benzene	<0.25	<0.01	<0.25	0.01	0.50	
2. Carbon Tetrachloride	<0.25	<0.01	<0.25	0.01	0.50	
3. Chlorobenzene	<50.0	<0.01	<50.0	0.01	100.00	
4. Chloroform	<3.0	<0.01	<3.0	0.01	6.00	
1. Ollioi Ololi		-0.02		7		
5. o-Cresol	<100.0	<0.01	<100.0	0.01	200.00	
	<100.0	<0.01	<100.0	0.01	200.00	
	<100.0	<0.01	<100.0	0.01	200.00	
-	<100.0	<0.01	<100.0	0.01	200.00	
10001 010001	.100.0					
8. 1,4-Dichlorobenzene	<3.75	<0.01	<3.75	0.01	7.50 -	
9. 1,2-Dichloroethane	<0.25	<0.01	<0.25	0.01	0.50	
10. 1,1-Dichloroethene	<0.35	<0.01	<0.35	0.01	0.700	
11. 2.4-Dinitrotoluene	<0.07	<0.01	<0.07	0.01	0.13	
	10.07	10.01		0.01	V.2V	
12. Hexachlorobenzene	<0.07	<0.01	<0.07	0.01	0.13	
13. Hexachloro-1,3	<0.25	<0.01	<0.25	0.01	0.50	
-butadiene			•			
14. Hexachloroethane	<1.50	<0.01	<1.50	0.01	3.00	
15. Methyl Ethyl Ketone	<100.0	<0.01	<100.0	0.01	200.00	
					•	
16. Nitrobenzene	<1.00	<0.01	<1.00	j 0.01	2.00	
17. Pentachlorophenol	<50.00	<0.01	<50.0	0.01	100.00	
18. Pyridine	<2.50	<0.01	<2.50	0.01	5.00	
19. Tetrachloroethylene	<0.35	<0.01	<0.35	0.01	0.70	
· · · · · · · · · · · · · · · · · · ·		· · · · · ·		÷		
20. Trichloroethylene	<0.25	<0.01	<0.25	0.01	0.50	
21. 2,4,5-Trichlorophenol		<0.01		0.01	400.00	
22. 2,4,6-Trichlorophenol		<0.01	<1.00	0.01	2.00	
23. Vinyl Chloride	<0.10	<0.01	<0.10	0.01	0.20	

All results expressed as ppm unless otherwise indicated. Methods performed according to SW-846, "Test methods for Evaluating Solid Waste".

Analysis performed on Extract from TCLP.

Leel E. Zehrer LABORATORY DIRECTOR

COPPER AMMONIUM CHLORIDE (SPENT ETCHANT)

TEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000059

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: 1. Waste Corrosive Liquid, n.o.s.

2. Waste Alkaline (Corrosive) Liquid,

n.o.s.

3. Waste Ammonium Hydroxide Solution

Hazard Class: Corrosive Material

Identification No.: 1. UN 1760

2. NA 1719

3. NA 2672

Label Required: Corrosive

EPA Hazardous Waste No.: D002 - primary. D004, D005, D006, D007, D008, D009, D010, D011 - secondary.

RO = 100 lbs (D002). See Chemical Components, also.

Physical Data

Color: Dark blue

Physical State: Liquid

Specific Gravity: 1.2 ± 0.2

COPPER AMMONIUM CHLORIDE (SPENT ETCHANT)

Flash Point: Non-flammable

pH: 8 - 9

Reactivity: Stable

Incompatibility: Strong acids, strong alkalis, extreme heat.

Chemical Components	<u>%</u>	RO	CAS No.
Ammoniated Cupric Chloride Ammonium Chloride Ammonium Hydroxide Ammonium Carbonate	30-55 10-20 10-30 1-5	10/4.54 5000/2270 5000/2270 5000/2270	15610-76-1 12125-02-9 - 506-87-6
Copper as Cu Water Total Solids	5-15 45-70 30-65	<u>-</u> -	7440-50-8 7732-18-5

Emergency Response Information

DOT Guide No.: 60

Health Hazards:

May be harmful if inhaled. Contact causes burns to skin and eyes. Ingestion causes irritation.

Fire Hazards:

Fire may cause irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of inhalation, move victim to fresh air; call for emergency medical care.

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes.

Remove contaminated clothing and shoes.

In case of ingestion, do not induce vomiting. Drink large amounts of water. Call for emergency medical care.

CUPRIC (COPPER) CHLORIDE - CHLORINE PROCESS

IEPA GENERIC WASTE STREAM PERMIT INFORMATION

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000065

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: Waste Corrosive Liquid, n.o.s.

Hazard Class: Corrosive Material

Identification No.: UN 1760

Label Required: Corrosive

EPA Hazardous Waste No.: D002 - primary. D004, D005, D006, D007,

D008, D009, D010, D011 - secondary.

RQ = 100 lbs (D002). See Chemical Components, also.

Physical Data

Color: Dark green

Physical State: Liquid

Specific Gravity: 1.3 ± 0.2

Flash Point: Non-flammable

pH: <2 (acidic)

CUPRIC (COPPER) CHLORIDE - CHLORINE PROCESS

Incompatibility: Strong acids, strong alkalis, cyanide.

Chemical Components	<u> 8</u>	RO	CAS No.
Cupric Chloride	15-35	10/4.54	1344-67-8
Hydrochloric Acid	0-25	5000/2270	7647-01-0
Copper as Cu	5-15	_	7440-50-8
Water	50-90	•••	7732-18-5
Total Solids	30-45	-	

Emergency Response Information

DOT Guide No.: 60

Health Hazards:

May be harmful in inhaled. Contact causes burns to skin and eyes. Ingestion causes burns.

Fire Hazards:

Fire may cause irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of inhalation, move victim to fresh air; call for emergency medical care.

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes.

Remove contaminated clothing and shoes.

In case of ingestion, do not induce vomiting. Drink large amounts of water. Call for emergency medical care.

CUPRIC (COPPER) CHLORIDE - SODIUM PROCESS

IEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000065

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: Waste Corrosive Liquid, n.o.s.

Hazard Class: Corrosive Material

Identification No.: UN 1760

Label Required: Corrosive

EPA Hazardous Waste No.: D002 - primary. D004, D005, D006, D007,

D008, D009, D010, D011 - secondary.

RQ = 100 lbs (D002). See Chemical Components, also.

Physical Data

Color: Dark green

Physical State: Liquid

Specific Gravity: 1.3 ± 0.2

Flash Point: Non-flammable

pH: <2 (acidic)

CUPRIC (COPPER) CHLORIDE - SODIUM PROCESS

Incompatibility: Strong acids, strong alkalis, cyanide.

Chemical Components	<u>\$</u>	RO	CAS No.
Cupric Chloride	20-30	10/4.54	1344-67-8
Hydrochloric Acid	5-10	5000/2270	7647-01-0
Sodium Chlorate	1-2	_	7775-09-9
Sodium Chloride	0-1		7647-14-5
	5-15		7440-50-8
Copper as Cu	50-90		7732-18-5
Total Solids	20-40		

Emergency Response Information

DOT Guide No.: 60

Health Hazards:

May be harmful if inhaled. Contact causes burns to skin and eyes. Ingestion causes burns.

Fire Hazards:

Fire may cause irritating or poisonous gases.
Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of inhalation, move victim to fresh air; call for emergency medical care. In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. In case of ingestion, do not induce vomiting. Drink large amounts of water. Call for emergency medical care.

COPPER SULFATE SOLUTION

IEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000229

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: Waste Corrosive Liquid, n.o.s.

Hazard Class: Corrosive Material

Identification No.: UN 1760

Label Required: Corrosive

EPA Hazardous Waste No.: D002 - primary. D004, D005, D006, D007,

D008, D009, D010, D011 - secondary.

RQ = 100 lbs (D002). See Chemical Components, also.

Physical Data

Color: Blue

Physical State: Liquid

Specific Gravity: 1.15 ± 0.02

Flash Point: Non-flammable

pH: <2 (acidic)

Reactivity: Moderately stable

COPPER SULFATE SOLUTION

Incompatibility: Strong alkalis

Chemical Components	<u>%</u>	RO	CAS No.
Cupric Sulfate Sulfuric Acid Copper as Cu Water Total Solids	15-18 5-10 4-5 70-90 20-25	10/4.54 1000/454 - -	7758-98-7 7664-93-9 7440-50-8 7732-18-5

Emergency Response Information

DOT Guide No.: 60

Health Hazards:

May be harmful if inhaled. Contact causes burns to skin and eyes. Ingestion causes severe burns.

Fire Hazards:

Fire may cause irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of inhalation, move victim to fresh air; call for emergency medical care. In case of contact with material, immediately flush skin or

eyes with running water for at least 15 minutes.

Remove contaminated clothing and shoes.

In case of ingestion, do not induce vomiting. Drink large amounts of water. Call for emergency medical care.

COPPER SULFATE CRYSTAL

IEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000229

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: 1. Waste Corrosive Solid, n.o.s.

2. Waste Corrosive Liquid, n.o.s.

Hazard Class: Corrosive Material

Identification No.: 1. UN 1759

2. UN 1760

Label Required: Corrosive

EPA Hazardous Waste No.: D004, D005, D006, D007, D008, D009, D010, D011 - solid and liquid. D002 - liquid only.

RQ = 100 lbs (D002). See Chemical Components, also.

Physical Data

Color: Blue

Physical State: Crystals, solid

Specific Gravity: 2.25 ± 0.05

Flash Point: Non-flammable

pH: 2.2 - 2.4, in solution

COPPER SULFATE CRYSTAL

Incompatibility: Strong alkalis

Chemical Components	<u>%</u>	<u>RO</u>	CAS No.
Cupric Sulfate Sulfuric Acid Copper as Cu Water Total Solids	90-95 0-2 20-25 0-10 90-100	10/4.54 1000/454 - -	7758-98-7 7664-93-7 7440-50-8 7732-18-5

Emergency Response Information

DOT Guide No.: 60

Health Hazards:

Contact causes burns to skin and eyes. Toxic by ingestion, strong irritant for large doses. Trace amounts added to animal feeds.

Fire Hazards:

Fire may cause irritating or poisonous gases.
Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. In case of ingestion, get medical attention.

SPENT NICKEL AND COPPER SOLUTION

IEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000068

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: Waste Corrosive Liquid, n.o.s.

Hazard Class: Corrosive Material

Identification No.: UN 1760

Label Required: Corrosive

EPA Hazardous Waste No.: D002 - primary. D004, D005, D006, D007,

D008, D009, D010, D011 - secondary

RQ = 100 lbs (D002). See Chemical Components, also.

Physical Data

Color: Green to blue

Physical State: Liquid

Specific Gravity: 1.5 ± 0.05

Flash Point: Non-flammable

pH: <2 (acidic)

SPENT NICKEL AND COPPER SOLUTION

Incompatibility:

Strong alkalis, extreme heat, organics, most metals, wood, paper, oil, cyanide, Electroless Nickel Solutions.

Chemical Components	<u>*</u>	RO	CAS No.
Nickel Nitrate	0-35	5000/2270	13138-45-9
Copper Nitrate	0-25	100/45.4	3251-23-8
Zinc Nitrate	1-5	5000/2270	7779-88-6
Sulfuric Acid	10-20	1000/454	7664-93-9
Hydrochloric Acid	10-20	5000/2270	7647-01-0
Nitric Acid	10-30	1000/454	7697-37-2
Nickel as Ni	0-15	-	7440-02-0
Copper as Cu	1-10	-	7440-50-8
Zinc as Zn	. 1		7440-66-6
Water	40-50		7732-18-5
Total Solids	0-60	, -	

Emergency Response Information

DOT Guide No.: 60

Health Hazards:

Harmful if inhaled. Contact causes burns to skin and eyes. Ingestion causes severe burns.

Fire Hazards:

Fire may cause irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of inhalation, move victim to fresh air; call for emergency medical care.

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes.

Remove contaminated clothing and shoes.

In case of ingestion, do not induce vomiting. Drink large amounts of water. Call for emergency medical care.

NICKEL PLATING SOLUTION

TEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000230

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: Hazardous Waste Liquid, n.o.s.

Hazard Class: ORM-E

Identification No.: NA 9189

Label Required: ORM-E

EPA Hazardous Waste No.: D004, D005, D006, D007, D008, D009, D010, D011; F006.

RQ = 1 lb (D004, D008, D009, D011); 10 lbs (D006, D007, F006). See Chemical Components, also.

Physical Data

Color: Dark green

Physical State: Liquid

Specific Gravity: 1.29 ± 0.03

Flash Point: Non-flammable

pH: 3 - 5

NICKEL PLATING SOLUTION

Incompatibility: None noted.

Chemical Components	<u>%</u>	RO	CAS No.
Nickel Sulfate	0-40	5000/2270	7786-81-4
Nickel Chloride	0-35	5000/2270	7718-54-9
Nickel Sulfamate	0-20	<u>-</u>	13770-89-3
Boric Acid	0-5		10043-35-3
Sodium Sacharin	0-30	•	128-44-9
Nickel as Ni	4-10		7440-02-0
Copper as Cu	4-10	-	7440-50-8
Water	75-85		7732-18-5
Total Solids	15-25	-	-

Emergency Response Information

DOT Guide No.: 31

Health Hazards:

May be harmful in inhaled.

Skin and eye irritant. May be toxic by ingestion in large doses.

Fire Hazards:

Fire may produce irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. Wash skin with soap and water. Remove contaminated clothing and shoes. In case of ingestion, get medical attention.

NICKEL CARBONATE CAKE

TEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000230

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: Hazardous Waste Solid, n.o.s.

Hazard Class: ORM-E

Identification No.: NA 9189

Label Required: ORM-E

EPA Hazardous Waste No.: D004, D005, D006, D007, D008, D009, D010,

D011; F006.

RQ = 1 lb (D004, D008, D009, D011); 10 lbs (D006, D007, F006).

See Chemical Components, also.

Physical Data

Color: Green

Physical State: Solid

Specific Gravity: 2.2 ± 0.5

Flash Point: Non-flammable

pH: 8 - 9, in solution

NICKEL CARBONATE CAKE

Incompatibility: None noted.

Chemical Components	<u>%</u>	RO	CAS No.
Nickel Carbonate, basic	15-30	1000/2250	3333-67-3
Copper Carbonate	0-20		12069-69-1
Nickel as Ni	8-14	•	7440-02-0
Copper as Cu	0-8		7440-50-8
Water	15-40	•	7732-18-5
Total Solids	20-25		

Emergency Response Information

DOT Guide No.: 31

Health Hazards:

Skin and eye irritant. Irritant if ingested, may be toxic in large doses.

Fire Hazards:

Fire may produce irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. Wash skin with soap and water. Remove contaminated clothing and shoes. In case of ingestion, get medical attention.

entech recovery, inc. dba CP inorganics waste profile sheet

ELECTROLESS NICKEL SOLUTION

IEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000230

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T31, T36, T40, T41, T45, T57

Manifest and Label Information

Proper DOT Shipping Name: Hazardous Waste Liquid, n.o.s.

Hazard Class: ORM-E

Identification No.: NA 9189

Label Required: ORM-E

EPA Hazardous Waste No.: D004, D005, D006, D007, D008, D009, D010, D011.

RQ = 1 lb (D004, D008, D009, D011); 10 lbs (D006, D007). See Chemical Components, also.

Physical Data

Color: Green

Physical State: Liquid

Specific Gravity: 1.15 ± 0.05

Flash Point: Non-flammable

pH: 6 - 8

ELECTROLESS NICKEL SOLUTION

Incompatibility: Extreme heat, nitric acid solutions.

Chemical Components	<u>%</u>	RO	CAS No.
Ammonium Hydroxide	5-10	4007	**
Inorganic Salts	15-25		-
Nickel as Ni	1-5		7440-02-0
Water	75-85	-	7732-18-5

Emergency Response Information

DOT Guide No.: 31

Health Hazards:

May be harmful if inhaled. Skin and eye irritant. Irritant if ingested, may be toxic in large doses.

Fire Hazards:

Fire may produce irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. Wash skin with soap and water. Remove contaminated clothing and shoes. In case of ingestion, get medical attention.

ENTECH RECOVERY, INC. dba CP INORGANICS WASTE PROFILE SHEET

FERRIC CHLORIDE SOLUTION

IEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: 000078

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Handling Codes: S01

Manifest and Label Information

Proper DOT Shipping Name: Waste Ferric Chloride Solution

Hazard Class: Corrosive Material

Identification No.: UN 2582

Label Required: Corrosive

EPA Hazardous Waste No.: D002 - primary. D004, D005, D006, D007,

D008, D009, D010, D011 - secondary.

RQ = 100 lbs (D002). See Chemical Components, also.

Physical Data

Color: Dark red

Physical State: Liquid

Specific Gravity: 1.4 ± 0.02

Flash Point: Non-flammable

pH: <2 (acidic)

Reactivity: Stable

FERRIC CHLORIDE SOLUTION

Incompatibility: Strong alkalis, extreme heat.

Chemical Components	<u> </u>	RO	CAS No.
Ferric Chloride	35-40	1000/454	7705-08-0
Cupric Chloride	0-10	10/4.54	1344-67-8
Hydrochloric Acid	1-2	5000/2270	7647-01-0
Iron as Fe	5-10	-	7439-89-6
Copper as Cu	1-5		7440-50-8
Zinc as Zn	1-3		7440-66-6
Chromium as Cr	1-2	<u>.</u>	7440-47-3
Lead as Pb	10 ppm	-	7439-92-1
Water	10-70	-	7732-18-5
Total Solids	0−20	-	-

Emergency Response Information

DOT Guide No.: 60

Health Hazards:

Harmful if inhaled. Contact causes burns to skin and eyes. Ingestion causes burns.

Fire Hazards:

Fire may cause irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of inhalation, move victim to fresh air; call for emergency medical care.

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes.

Remove contaminated clothing and shoes.

In case of ingestion, do not induce vomiting. Drink large amounts of water. Call for emergency medical care.

ENTECH RECOVERY, INC. dba CP INORGANICS WASTE PROFILE SHEET

NICKEL COPPER CAKE

TEPA Generic Waste Stream Permit Information

Facility Site Code: 1970250002

Facility USEPA I.D. No.: ILD 062480850

Generic Waste Stream Permit No.: Proposed for acceptance, IEPA

application pending

Waste Classification: Hazardous

Disposal Method: Recycle, Reuse or Reclamation

Treatment Method: Metals Recovery

Handling Codes: S01, S02; T23, T40, T52, T57

Manifest and Label Information

Proper DOT Shipping Name: Hazardous Waste Solid, n.o.s.

Hazard Class: ORM-E

Identification No.: NA 9189

Label Required: ORM-E

EPA Hazardous Waste No.: D004, D005, D006, D007, D008, D009, D010,

D011; F006

RQ = 1 lb (D004, D008, D009, D011); 10 lbs (D006, D007, D010,

F006). See Chemical Components, also.

Physical Data

Color: Green

Physical State: Solid

Specific Gravity: 2.2 ± 0.5

Flash Point: Non-flammable

pH: 7.0 - 8.5, in solution

Reactivity: Stable

NICKEL COPPER CAKE

Incompatibility: Extreme heat

Chemical Components	<u>%</u>	RO	CAS No.
Nickel Carbonate, basic	16-28	1000/2250	3333-67-3
Copper Carbonate	16-28	<u> </u>	12069-69-1
Nickel as Ni	8-14		7440-02-0
Copper as Cu	8-14	-	7440-50-0
Water	75-80	-	7732-18-5
Total Solids	20-25		

Emergency Response Information

DOT Guide No.: 31

Health Hazards:

Skin and eye irritant. Irritant, if ingested, may be toxic in large doses.

Fire Hazards:

Fire may produce irritating or poisonous gases. Runoff from fire control or dilution water should be contained and/or collected.

First Aid:

In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. Wash skin with soap and water. Remove contaminated clothing and shoes. In case of ingestion, get medical attention.

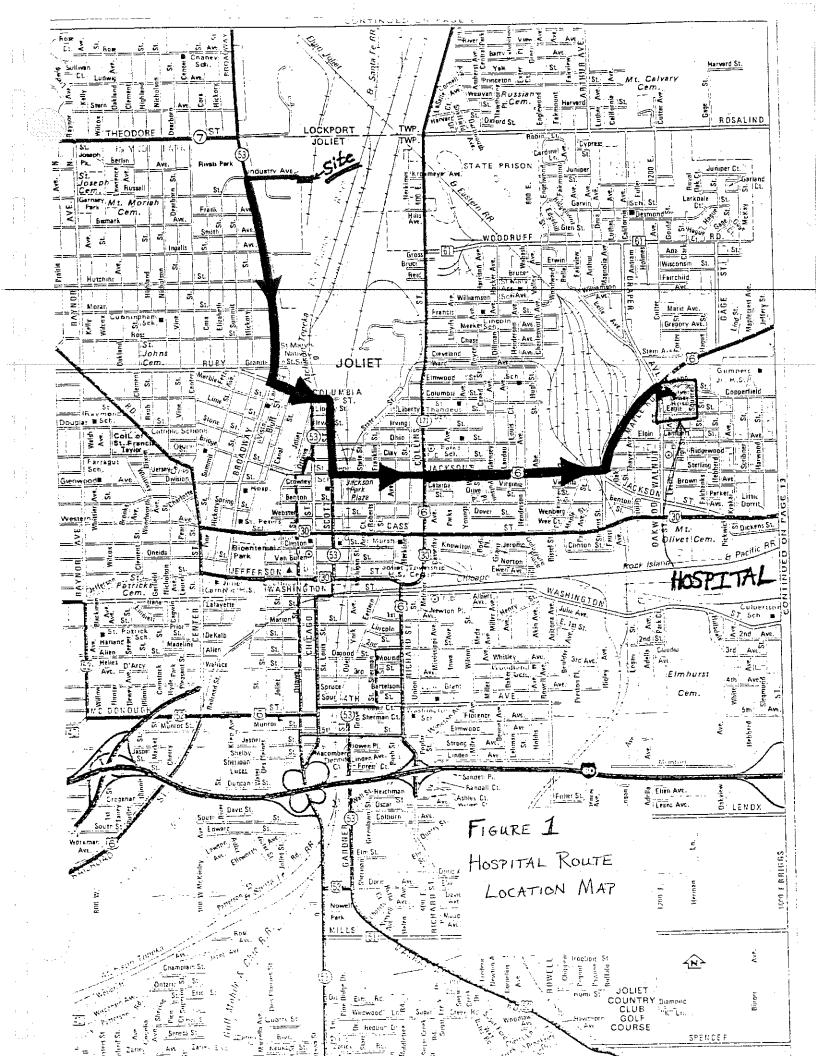
HANDLING CODES FOR TREATMENT, STORAGE, AND DISPOSAL METHODS

Source: Table 2, Appendix I, 40 CFR 264

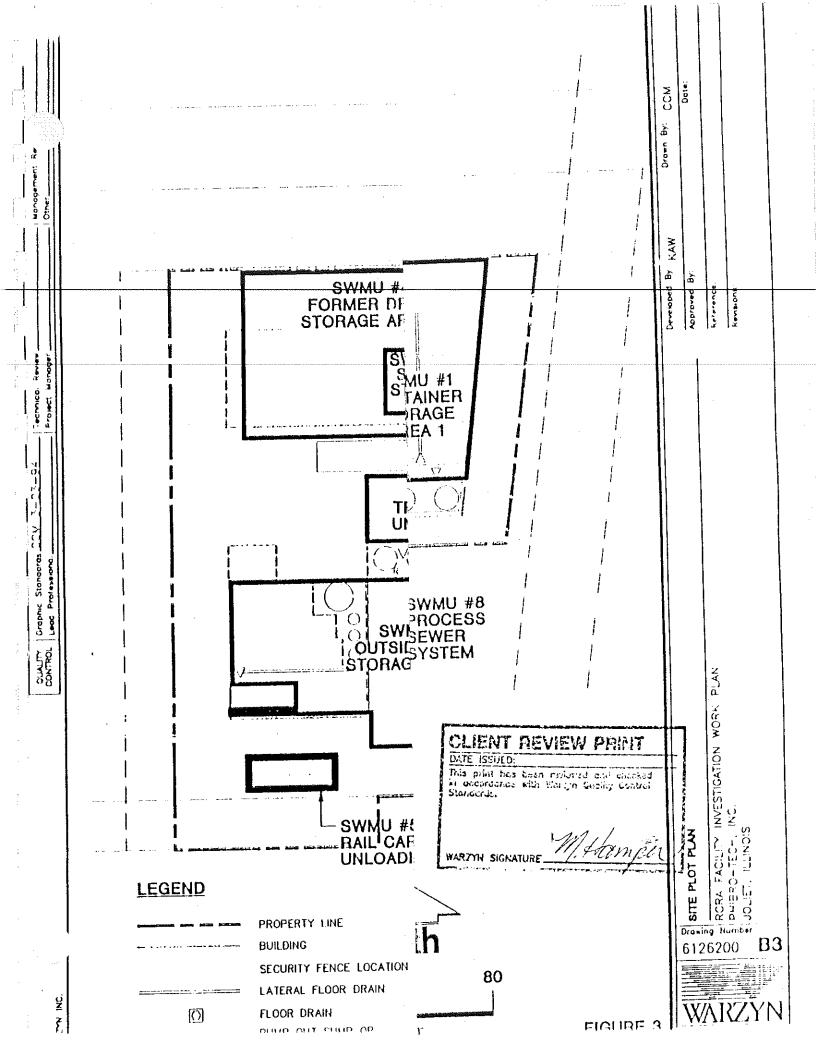
- 1. Storage
 - S01 Container (barrel, drum, etc.)
 - S02 Tank
- 2. Treatment
 - (a) Chemical
 - T23 Chemical Precipitation
 - T31 Neutralization
 - (b) Physical Treatment, Separation of Components
 - T36 Clarification
 - T40 Filtration
 - T41 Flocculation
 - T45 Thickening
 - (c) Physical Treatment, Removal of Specific Components
 - T57 Evaporation

C

SITE MAPS







D

SEVERE WEATHER

D

SEVERE WEATHER

When projects are conducted outside, the potential for severe weather must be considered. Thunderstorms, tornados and winter storms can develop quickly, jeopardizing your safety. The following emergency procedures are to be followed in the event of severe weather.

THUNDERSTORMS AND LIGHTNING

Monitor weather conditions at all times while working. At a sign of an impending storm - increased cloudiness, darkened skies, increased wind - listen to a radio for the latest weather information.

When a thunderstorm accompanied by lightning is in the project area, cease work immediately. All powered equipment, such as drill rigs, are to be shut down.

Seek shelter inside nearby buildings or trailers. If there are no buildings nearby, seek shelter inside your vehicle.

If you are caught outside, do not stand beneath tall, isolated trees or telephone poles. Avoid areas projecting above the landscape such as hill tops. In open areas, go to a low place such as a ravine or valley. Stay away from open water, metal equipment, wire fences and metal pipes. If you are in a group of people in the open, spread out, staying several yards apart.

If you are caught in a level field or open area far from shelter and you feel your hair stand on end, lightning may be about to strike you. Drop to your knees and bend forward, putting your hands on your knees. You should minimize the body area in direct contact with the ground. Do not lie flat on the ground.

If someone has been struck by lightning, monitor life signs and begin administering mouth-to-mouth resuscitation or cardiopulmonary resuscitation as needed. Send for help.

Check conscious victims for burns, especially at the fingers and toes and next to buckles and jewelry. Administer first aid for shock. Do not let the victim walk around.

TORNADOS

Tornados usually develop from thunderstorms and normally occur at the trailing edge of the storm. Most tornados occur in the months of April, May, June, and July in the late afternoon and early evening hours.

When storms are predicted for the project area, monitor weather conditions on a radio. A <u>tornado watch</u> is issued when favorable conditions exist for the development of a tornado. A <u>tornado warning</u> is issued by the local weather service office whenever a tornado has actually been sighted or is strongly indicated by radar.

If a <u>tornado warning</u> is issued, seek shelter immediately. If there are permanent buildings located on site, go there immediately, moving toward interior hallways or small rooms on the lowest floor.

If a <u>tornado warning</u> is issued and you are in a vehicle or a site trailer, leave and go to the nearest building. If there are no buildings nearby, go in the nearest ditch, ravine or culvert, with your hands shielding your head.

If a tornado is sighted or a <u>warning</u> issued while you are in open country, lie flat in a ditch or depression. Hold onto something on the ground, such as a bush or wooden fence post, if possible.

Once a tornado has passed the site, site personnel are to assemble at the designated assembly area to determine if anyone is missing. Administer first aid and seek medical attention as needed.

WINTER STORMS

When snow or ice storms are predicted for the project area, site personnel should monitor weather conditions on a radio. A <u>winter storm watch</u> is issued when a

storm has formed and is approaching the area. A <u>winter storm warning</u> is issued when a storm is imminent and immediate action is to be taken.

When a <u>storm watch</u> is issued, monitor weather conditions and prepare to halt site activities. Notify the project manager of the situation. Seek shelter at site buildings or leave the site and seek warm shelter.

If you are caught in a severe winter storm while traveling, seek warm shelter if road conditions prevent safe travel.

If you are stranded in a vehicle during a winter storm:

- <u>Stay in the vehicle</u>. Disorientation comes quickly in blowing and drifting snow.
- Wait for help.
- Keep a window open an inch or so to avoid carbon monoxide poisoning.
- Run the engine and heater sparingly.
- Keep watch do not let everyone sleep at the same time.
- Exercise occasionally.

E

TEMPERATURE STRESS

TEMPERATURE STRESS

This section outlines the signs and symptoms of temperature stress in addition to the engineering controls, work practice controls and other management techniques that should be used to reduce temperature stress. Individual susceptibilities to temperature stress need to be considered and used to pace the work being performed with the most susceptible person controlling the work/rest schedule. Monitoring for heat stress is to be performed as detailed in this section.

COLD STRESS

Reduction

The following engineering controls are recommended for reduction of cold stress:

- Use general or spot heating to increase temperature at work site if this does not create a hazardous situation.
- Shield work area from wind.
- Cover metal handles of tools and equipment with thermal insulating materials.
- Do not sit on unprotected metal chair seats.
- Use heated rest areas if work is to be performed in an equivalent chill temperature of 20°F or below.

The following work practice controls are recommended to reduce cold stress:

• Drink warm, caffeine-free, sweet, non-alcoholic drinks or soup frequently.

March 1994

Phibro-Tech. Inc., Joliet. Illinois

- Schedule work for warmest part of the day.
- Use heated rest areas regularly.
- Use the buddy system. Do not work alone. Observe your co-workers for signs and symptoms of cold stress.
- Allow and encourage workers to pace themselves and take extra breaks when needed. The work schedule should be set by the person most susceptible to cold stress. Do not pressure someone to work beyond their capabilities.
- Whenever possible, allow new workers time to adjust to working in a cold environment before working full time. Ideally, acclimation should occur over five days: 20% Day 1 with a 20% increase on each successive day.
- When possible, arrange the work to minimize standing or sitting still for long periods of time.
- Reorganize work procedures so as much of a job as possible can be done in a warm environment.
- · Avoid overtime.
- Remove outer layer of clothing when entering warm shelter.
- If clothes are wet, change to dry work clothes before returning to work in cold. If not possible, loosen clothing to facilitate evaporation of sweat.
- Develop and adhere to a work-rest schedule, using the guidelines which follow.

Air Temperature	Work/Break Schedule (minutes)				
with Sunny Sky (degrees F)	no <u>wind</u>	5 mph <u>wind</u>	10 mph wind	15 mph <u>wind</u>	20 mph <u>wind</u>
-05 to -09	110/10	110/10	75/10	55/10	40/10
-10 to -14	110/10	75/10	55/10	40/10	30/10
-15 to -19	75/10	55/10	40/10	30/10	cease
-20 to -24	55/10	40/10	30/10	cease	cease
-25 to -29	40/10	30/10	cease	cease	cease
-30 to -34	30/10	cease	cease	cease	cease
-35 & below	cease	cease	cease	cease	cease

Notes

- 1. These recommendations and guidelines are adapted from *Threshold Limit Values and Biological Exposure Indices for 1990-1991*, published by the American Conference of Governmental Industrial Hygienists, Cincinnati, OH.
- 2. 05 mph wind light flag moves, 10 mph wind light flag fully extended, 15 mph wind raises newspaper sheet, 20 mph wind blowing and drifting snow

The practicality of working under a work-rest schedule, together with the ability of the necessary equipment to function properly in cold weather, may be more restrictive than the health hazards and also need to be considered. The cold stress schedules noted above apply to light or sedentary work activities. Light to moderate work activities can be moved up one level, moderate to heavy work activities can be moved up two levels if workers are acclimated, have proper protective clothing and show no signs of cold stress.

For example:

You are shoveling material (which is generally considered heavy work) on a sunny day with a 5 mph wind. The temperature is -20 degrees F. You could use a 110 minutes work/10 minutes warm-up schedule if you were acclimated to cold weather work. A 75 minutes work/10 minutes warm-up could be used if you were not acclimated to cold weather work.

Signs and Symptoms

Send a worker to warm shelter immediately if any of the following symptoms are noted:

- Heavy shivering
- Frostnip (skin turns white)
- Feeling of excessive fatigue
- Drowsiness

Euphoria

First Aid

Take victim to a warm area. Remove the outer layers of clothing. Gently warm the affected area, submerge it in tepid water if possible but do not rub. If there is evidence of frostbite, obtain medical attention immediately.

HEAT STRESS

Reduction

While site specific conditions need to be considered, the following guidelines are recommended to prevent or reduce the effects of heat stress.

- Develop and adhere to a work-rest schedule using the guidelines at the end of this section.
- Take breaks in cool areas.
- Drink fluids hourly. The fluids should be caffeine-free and non-alcoholic. Water or electrolyte-replacement drinks, such as Gatorade™, are good choices. Do not wait until you are thirsty. Your normal thirst mechanism is not sufficient to overcome the effects of dehydration. If you feel thirsty, you are already becoming dehydrated.
- Schedule work for the cooler part of the day -- early morning and/or early evening.
- Allow and encourage workers to pace themselves and take extra breaks
 when needed. The work schedule should be set by the person most
 susceptible to heat stress. Do not pressure someone to work beyond
 their capabilities.
- Whenever possible, allow new workers time to adjust to working in a
 hot environment before working full time. Ideally, acclimation should
 occur over five days: 20% Day 1 with a 20% increase on each
 successive day.
- Avoid overtime.
- Use the buddy system. Never work alone and watch your co-workers for signs of heat stress.

Personal Monitoring

At each work break, count your pulse during a 30 second period as early as possible in the rest period.

- If your heart rates exceeds 110 beats per minute (BPM) at beginning of rest period, shorten your next work cycle by 1/3 and keep the rest period the same.
- If your heart rate still exceeds 110 BPM at next rest period, shorten the following work cycle by 1/3.

At the beginning and end of each work shift, measure your weight, \pm 0.25 LB, wearing similar clothes. You should not lose more than 1.5% of your total body weight in a work day. If you do, drink fluids to compensate and to prevent dehydration.

A summary of recommended work breaks and personal monitoring schedule follows. These values apply to moderate work levels. For heavy work levels, apply monitoring schedule one level up. Light to sedentary work activities can be moved down one level if workers are acclimated and show no signs of heat stress.

For example:

You are performing oversight work in Level D and your task is to record data. It is 75 degrees F and sunny. The adjusted temperature is then 88 degrees F. If you are acclimated to warm weather work, you could work and conduct heat stress monitoring every 90 minutes. If, on the other hand you were shoveling material and were acclimated to warm weather work, you would need to monitor for heat stress every 45 minutes.

Adjusted Temperature* (<u>°F)</u>	Normal Work <u>Clothes</u>	Impermeable Work <u>Clothes</u>
above 90	45	15
. 88 to 90	60	30
83 to 87	90	60
77 to 82	120	90
72 to 78	150	120

^{*} Adjusted temperature = measured temperature + (13 x % sunshine)

Note

1. These recommendations and guidelines are adapted from *Threshold Limit Values and Biological Exposure Indices for 1990-1991*, published by the American Conference of Governmental Industrial Hygienists, Cincinnati, OH.

Signs and Symptoms

- · Heat rash
- Heat cramps: Muscle spasms; pain in hands, feet or abdomen
- Heat exhaustion: Pale, cool moist skin; heavy sweating; dizziness; nausea; fainting
- Heat stroke: Red, hot, usually dry skin; lack of, or reduced, perspiration; nausea; dizziness; confusion; strong, rapid pulse; coma

First Aid

Remove the affected individual's protective clothing and equipment. Wrap the victim in wet towels or clothing. If there are signs or symptoms of heat exhaustion or heat stroke, get medical attention immediately.

F

GENERAL HEALTH AND SAFETY RULES

GENERAL HEALTH AND SAFETY

RULES

GENERAL HEALTH AND SAFETY RULES

Use proper lifting techniques when handling heavy articles. Keep the load close, bend your knees, never twist or turn with a load. When in doubt, get help or divide the load.

Report to your manager immediately any condition or practice you think might cause injury to employees or others or damage to property, equipment or environment.

Do not participate in horseplay. Do not distract others from their work.

Always wear a safety belt, whether passenger or driver, when in a motor vehicle on company business.

* SAFETY RULES FOR FIELD WORK

Wear personal protective equipment in all operations where there is an exposure to hazardous conditions or where the need for using such equipment to reduce the hazards is designated.

Hard hats are required in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns.

Hearing protection is required when exposure to noise is above OSHA allowable levels.

Eye and/or face protection is required when machines or operations present potential physical or health hazards to the eyes or face.

Respiratory protection is required when controls fail or are inadequate to prevent harmful exposure.

Personal flotation devices are required when working over or near water.

Foot protection is required as necessary to prevent injury from dropped or falling objects.

Observe all safety signs and do not remove any "lock-out" tags.

Work not more than 12 hours per day, exclusive of travel time, when operating machines and equipment.

Wear radiation badge when working with nuclear testing equipment.

Follow procedures outlined in Troxler Manual when using, transporting or storing nuclear density meter.

Secure all loose equipment in the test vehicle which might "fly" when making sudden stops.

Use proper lifting techniques when transporting nuclear meters or other heavy articles.

Stay away from the swing of the back-hoe bucket. Approach only when things are secure.

Read the Site Safety Plan before field mobilization. Comply with its requirements at all times.

Always use ground-fault interrupt in all circuits that might be exposed to moisture or are used outside.

Use only grounded or double insulated power tools.

Notify the SSO of any unsafe acts or conditions.

Site personnel are to notify the SSO at the first indication that they are experiencing temperature stress or any signs or symptoms which may be due to exposure of chemicals.

Site Personnel are expected to comply with applicable OSHA, EPA or other regulatory agency standards and regulations at all times.

SAFETY RULES FOR WORK IN OR NEAR MANHOLES, TRENCHES, AND EXCAVATIONS

Field personnel are not to enter confined spaces such as pits, trenches, tanks or manholes, unless confined space entry procedures are specifically included in the Site Safety Plan (SSP) and are fully implemented.

Most work can be performed without entering trenches or excavations. Make the necessary engineering changes to accomplish the task without entering the trench or excavation. For example, soil samples can be taken from the backhoe bucket eliminating the need for anyone to enter the excavation.

If such changes can not be implemented, the Site Safety Plan must be amended to include confined space entry procedures. Enter only if the excavation is constructed according to OSHA standards and the Site Safety Plan specifically addressed entry into excavations.

Excavations are to be filled in or barricaded at the end of the workday.

Do not enter manholes or other similar devices:

- Where noxious gases are present
- Without a co-worker at topside
- Where rungs are unsafe
- That contain electrical cable and equipment

SAFETY RULES WHEN WORKING NEAR HIGHWAYS OR CONSTRUCTION SITE TRAFFIC

Set out traffic cones, warning signs, and flashers when performing field work in traffic areas. In traffic areas and on construction sites where heavy equipment is operating, wear luminous traffic vests.

Use safety signs when performing bridge and highway surveys and use warning lights on vehicles, as appropriate.

Let the construction equipment operators know you are around. Have "eye to eye" contact prior to setting up for a test.

Site Safety Plan

Check the traffic pattern on construction projects before entering with a Warzyn vehicle.

If practical, use your vehicle on a large site to divert construction traffic around the test area.

Park the testing vehicle between your work area and the operating equipment. Always work a significant distance behind your vehicle to allow for it being struck.

SAFETY RULES FOR HAZARDOUS WASTE SITES

Smoking is not permitted at the site or in the site trailer.

Eating and drinking are only permitted in the support or clean zone.

No open fires are allowed.

All employees handling hazardous waste samples or who may be exposed to hazardous or solid waste must be active participants in the medical surveillance program.

A respirator can not be worn when beards or any other facial hair interferes with the face-to-respirator seal. Individuals with such facial hair are not to be allowed to work in Level of Protection C or B.

Working alone on field sites is generally prohibited. The "buddy system" is to be enforced at all times unless the Health and Safety Coordinator (HSC) specifically exempts the work from his requirement, based on the HSC's review of site conditions and hazards. When working under the "buddy system", personnel are to:

- Never work alone
- Provide partner with assistance
- Observe partner for signs for overexposure/temperature stress
- Check integrity of partner's protection clothing
- Notify others if emergency help is needed

Personnel on site must use the buddy system when wearing respiratory protective equipment. Visual contact must be maintained between pairs on-site. Entry team members are to remain close together to assist each other during emergencies.

No "souvenirs" or samples not required for the project are to be collected.

Samples are to be placed in approved containers before they can be removed from the site. Only approved or designated vehicles can be used to transport samples.

Samples are to be left in the staging area. Samples are never to be brought into the office.

Field apparel that had not been decontaminated is not to be worn into the office.

Field samples are to be disposed properly.

Contact with contaminated or suspected contaminated surfaces is to be avoided.

Do not walk through puddles, discolored surface, kneel on the ground, or lean, sit, or place equipment on visibly stained surfaces.

Drums or tanks found on site are not to be opened or moved unless specific drum/tank remediation tasks are specifically included in the SSP and are fully implemented.

Use work schedules that minimize time spent in hazardous areas.

Use work assignments that place employees upwind of sources of air contaminants.

Post the Site Safety Plan, or have a copy readily available, for review by employees. Verify that all personnel have read and signed the SSP.

Complete the "Comprehensive Site Health and Safety Checklist":

- Prior to the start of any site activities
- · At the start of any new phase of work
- When site conditions change

Complete the "Daily Health and Safety Checklist" prior to the start of each day's activities.

Site Safety Plan

G

DECONTAMINATION

DECONTAMINATION

Everything leaving the exclusion zone must be decontaminated or properly discarded. The exclusion zone is to be defined in the Site Health and Safety plan. All personnel entering the exclusion zone must exit through the decontamination zone. All equipment is to be decontaminated and inspected before it is moved into the support zone. Decontamination solutions are to be appropriate for the hazards. Decontamination solutions are to be changed at least daily and stored on site until disposal arrangements are made. Any material generated by the decontamination procedures will be stored in a designated area in the exclusion zone until disposal arrangements are made.

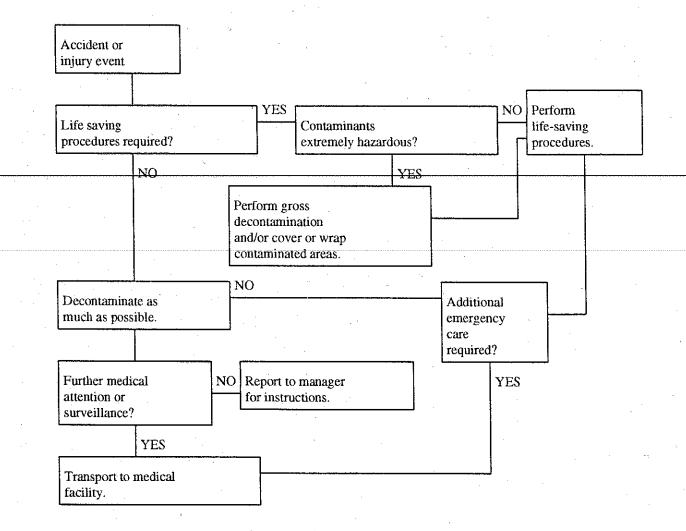
EMERGENCY DECONTAMINATION

The need for emergency decontamination of an individual may arise as the result of:

- · Injury or illness
- · Overexposure to chemicals or hazardous substances
- Temperature stress

Primary consideration needs to be given to life-preservation actions and the minimization of additional harm or health risks to the individual in the emergency situation and the rescuing individuals.

EMERGENCY DECISIONS



LEVEL B ROUTINE DECONTAMINATION

Equipment Drop

Deposit equipment used on site (tools, sampling devices, monitoring equipment, radios, etc.) on plastic drop cloths. Decontaminate or dispose of items before removal from exclusion zone.

Outer Boot/Glove Wash and Rinse

Scrub outer boots/gloves with decontamination solution then rinse with water.

Outer Boot/Glove Removal

Remove outer boots/gloves:

- If outer boots/gloves are disposable, deposit them in the appropriate plastic-lined container.
- If outer boots/gloves are not disposable, store them in a clean, dry place.

Outer Garment Removal

If using self-contained breathing apparatus (SCBA), remove SCBA back pack and remain on air as long as possible. Remove chemical-protective outer garments and deposit in the appropriate container.

Respiratory Protection Removal

Remove hard hat and face piece, and deposit on a clean surface. Wash and rinse hard hat and face piece. Wipe off and store face piece in a clean, dry location.

Inner Glove Removal

Remove inner gloves and deposit in the appropriate container for disposal.

Field Wash

Thoroughly wash hands and face with soap and water. Shower as soon as possible.

LEVEL B DECONTAMINATION FOR AIR TANK EXCHANGE

Equipment Drop

Deposit equipment used on site (tools, sampling devices, monitoring equipment, radios, etc.) on plastic drop cloths. Decontaminate or dispose of items before removal from exclusion zone.

Outer Boot/Glove Wash and Rinse

Scrub outer boots/gloves with decontamination solution then rinse using water.

Outer Boot/Glove Removal

Remove outer boots/gloves:

- If outer boots/gloves are disposable, deposit them in the appropriate plastic-lined container.
- If outer boots/gloves not disposable, store them in a clean, dry place.

Site Safety Plan

Tank Change

Exchange air tank. Don new outer boots/gloves. Tape joints and return to exclusion zone.

LEVEL C ROUTINE DECONTAMINATION

Equipment Drop

Deposit equipment used on site (tools, sampling devices, monitoring equipment, radios, etc.) on plastic drop cloths. Decontaminate or dispose of items before removal from exclusion zone.

Outer Boot/Glove Wash and Rinse

Scrub outer boots/gloves and/or splash suit with decontamination solution then rinse with water.

Outer Boot/Glove Removal

Remove outer boots/gloves:

- If outer boots/gloves are disposable, deposit in them in the appropriate plastic-lined container.
- If outer boots/gloves are not disposable, store them in a clean, dry place.

Outer Garment Removal

Remove chemical-protective outer garments and deposit them in the appropriate container.

Respiratory Protection Removal

Remove hard hat and respirator and deposit them on a clean surface. Discard respirator cartridges in the appropriate container. Wash and rinse hard hat and respirator. Wipe off and store respirator in a clean, dry location.

Inner Glove Removal

Remove inner gloves and deposit in them in the appropriate container for disposal.

Field Wash

Thoroughly wash hands and face with soap and water. Shower as soon as possible.

LEVEL C DECONTAMINATION FOR RESPIRATOR-CARTRIDGE EXCHANGE

Equipment Drop

Deposit equipment used on site (tools, sampling devices, monitoring equipment, radios, etc.) on plastic drop cloths. Decontaminate or dispose of items before removal from exclusion zone.

Outer Boot/Glove Wash and Rinse

Scrub outer boots/gloves and/or splash suit with decontamination solution then rinse with water.

Outer Boot/Glove Removal

Remove outer boots/gloves:

- If outer boots/gloves are disposable, deposit in them in the appropriate plastic-lined container.
- If outer boots/gloves are not disposable, store them in a clean, dry place.

Respirator Cartridge Change

Exchange respirator cartridges. Don new outer boots/gloves. Tape joints and return to exclusion zone.

LEVEL D-MODIFIED ROUTINE DECONTAMINATION

Equipment Drop

Deposit equipment used on site (tools, sampling devices, monitoring equipment, radios, etc.) on plastic drop cloths. Decontaminate or dispose of items before removal from exclusion zone.

Outer Boot/Glove Wash and Rinse

(Optional, include if necessary for gross decontamination)

Scrub outer boots/gloves and/or splash suit with decontamination solution then rinse with water.

Outer Boot/Glove Removal

Remove outer boots/gloves:

• If outer boots/gloves are disposable, deposit them in the appropriate plastic-lined container,

• If outer boots/gloves are not disposable, store them in a clean, dry place.

Outer Garment Removal

Remove chemical protective outer garments and deposit them in an appropriate container. Remove hard hat and safety glasses. Decontaminate them as necessary and deposit on a clean surface.

Inner Glove Removal

Remove inner gloves and deposit them in the appropriate container for disposal.

Field Wash

Thoroughly wash hands and face with soap and water. Shower as soon as possible.

H

FIELD EMERGENCY RESPONSE PROCEDURES

FIELD EMERGENCY

RESPONSE PROCEDURES

Based on the type of potential hazards that may be present, the Site Safety Officer (SSO) is to determine if a site specific emergency response plan is necessary prior to the beginning of work. If a site specific plan is necessary, it is to be attached to the Site Safety Plan (SSP).

FIRES AND EXPLOSIONS

Even a minor fire can become a serious problem, particularly when adjacent to flammable or combustible materials. The first few minutes after discovery of a fire are the most critical in preventing a larger emergency.

In case of a fire or explosion, immediately turn off burners and other heating devices and stop any work in progress. Give priority to assisting injured persons.

Small Fires

Take the following actions immediately:

- Alert other personnel in the vicinity and send someone for assistance
- If it is a small fire one that can be extinguished within 30 seconds or with one fire extinguisher attempt to extinguish the blaze if:
 - Conditions are safe
 - You have the proper type of fire extinguisher
 - You have been trained to use a fire extinguisher properly
 - You are not alone

The combination (ABC) extinguishers in the Warzyn Emergency Kits can be used against the following classes of fires:

- Class A fires ordinary combustible solids such as paper, wood, coal, rubber and textiles
- Class B fires petroleum hydrocarbons (diesel fuel, motor oil and grease) and volatile flammable solvents
- Class C fires electrical equipment

These extinguishers, however, are not effective against Class D fires which include combustible or reactive metals (such as sodium and potassium), metal hydrides or organometallics. Special Class D extinguishers are required.

Avoid entrapment by a fire; always fight from a position accessible to an exit.

If there is any chance that the fire can not be controlled by locally available personnel and equipment, the following action should then be taken:

- Activate the emergency alarm system (if available) and notify the local fire department.
- Confine the emergency to prevent further spread of the fire.
- Assist injured personnel and provide first aid or transportation to medical aid, if necessary.

Next notify client if the client is in close proximity to the fire. (If not, notify the fire department). Assess the need with the client to contact the fire department. If the fire department is contacted, be prepared to tell them:

- · Who you are
- Your location
- Type of fire (i.e., electrical, chemical, combustible solids, vapor)
- If the fire is extinguished
- The need for medical assistance

- Other potential hazards in the area (i.e., proximity to bulk tanks, downed electrical lines, poor access)
- What you will be doing after you hang up the phone and where they can find you or reach you

Upon arrival of the local fire department, brief them of the incident. When given permission, contact the Project Manager (PM) or in the PM's absence, the Office Supervisor or Corporate Health and Safety Manager.

Large Fire or Explosion

If other people are in the area, immediately notify them and then call the local fire department. Be prepared to tell them:

- Who you are
- Your location
- Type of fire (i.e., electrical, chemical, combustible solids, vapor)
- If the fire is extinguished
- The need for medical assistance
- Other potential hazards in the area (i.e., proximity to bulk tanks, downed electrical lines, poor access)
- What you will be doing after you hang up the phone and where they can find you or reach you

Upon arrival of the fire department, turn over command to them and supply as much information as possible. When given permission, contact the PM or in the PM's absence, the Office Supervisor or Corporate Health and Safety Manager. Get a number where they can again be reached.

FLAMMABLE/COMBUSTIBLE LIQUID SPILLS

If a spill of a flammable or combustible liquid occurs, all possible sources of ignition should be extinguished or removed immediately.

Use Material Safety Data Sheets (MSDSs), analytical information from laboratory personnel, and any other available sources of information, together with your own

Site Safety Plan

expertise to determine if spill control and clean up can be safely accomplished with the personnel and materials on site.

The following general spill clean up procedures can be utilized, but more specific techniques might be required for certain chemicals.

- Vermiculite or other suitable absorbent may be used to solidify free liquids.
- Both spilled liquids and solids residues must be contained in drums.
- If a spill occurs on soil, it must be scraped and contained.

EVACUATION

Prior to beginning work, the SSO should brief all Warzyn and subcontractor employees on what the evacuation signal should be. It may be nothing more than a verbal command or it may be some audible alarm such as a bell or horn. If working at a client's site, familiarize yourself with their warning system.

Prior to work, the SSO should determine a meeting place if evacuation is necessary. Preferably the meeting place should be upwind of the work activities and at a safe distance. All Warzyn and subcontractor employees should be informed of the meeting location.

If evacuation is necessary, everyone should go directly to the meeting area. The SSO should ensure all personnel (Warzyn and subcontractor) are accounted for. This will mean checking the sign-off documentation on the Site Safety Plan or on larger jobs the daily sign-in roster. The local on-scene commander should immediately be notified of any missing personnel as well as their last known whereabouts.

Site Evacuation

If an evacuation of the site is necessary, certain rules must be strictly followed:

- Employees in the vicinity should immediately shut down all equipment and disconnect electrical or flammable power sources to machinery.
- Immediately after personnel are alerted, they will evacuate the facility via the nearest escape route.
- All evacuated personnel will assemble at the predetermined meeting place.

Site Safety Plan

- Employees should not wait for friends; the Site Safety Officer will ensure all personnel have evacuated before departing.
- Employees should move quickly and calmly without panic.
- Employees should not smoke.
- Once assembled, employees should remain calm and quiet while the Site Safety Officer takes roll call and assesses the situation. Each employee must report to the Site Safety Officer until everyone is accounted for and evacuation is complete.

Off-Site Evacuation

If an incident is large enough, off-site personnel may also need evacuation. If off-site evacuation is necessary, follow the appropriate local notification procedures, generally through the fire department. Warzyn personnel should not attempt to evacuate off-site personnel but should leave that task to the local authorities. All Warzyn employees should follow the evacuation directions given by the local authorities. The Site Safety Officer should offer to remain at the command post to supply information. If told to leave, the SSO should leave.

Local authorities will have present an on-scene commander. The on-scene commander will direct emergency operations and will have assistance from the local fire department, police department and emergency government.

After evacuating to a safe area, the PM should be contacted or in the PM's absence, the Office Supervisor or Corporate Health and Safety Manager.

DISCUSSION OF INCIDENT

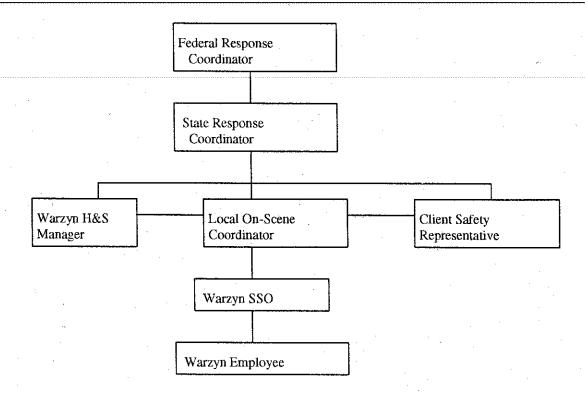
At no time should a Warzyn employee discuss an emergency incident with members of the media. Politely refuse to discuss the situation and instead, direct all inquiries to the Corporate Health and Safety Manager. Provide the media people with the office phone number.

However, Warzyn employees should always provide whatever useful information they can to response personnel. Stick to helpful facts and avoid placing blame or judgment. That will be sorted out later. Politely refuse to find fault or place blame.

At a safe place and at the appropriate time, write down all you remember of the incident. How did it happen? Who was doing what? What did I see? What did I hear? All these types of things may be important later when things are sorted out.

CHAIN-OF-COMMAND

The number of people involved in an incident will be directly related to the severity of the incident. In the event of an incident, the chain-of-command could be as extensive as:



Upon arrival of the local on-scene coordinator or client safety representative, the Warzyn SSO should turn over command of the situation. The responsibility of the Warzyn SSO is then to supply information and offer Warzyn supplies and personnel if requested. It is likely the local on-scene coordinator or client safety representative will not request Warzyn personnel but may request Warzyn supplies (HNu, absorbent, drums). In a major incident, it is likely the Warzyn Health and Safety Manager will arrive at the scene. At that time, all responsibilities of the SSO should be turned over to the Health and Safety Manager.

T

FIRST AID

FIRST AID

OPEN WOUNDS

Stop the bleeding by direct pressure, elevation, and if necessary, direct pressure on the supply artery. Do not attempt to cleanse severe wounds. Apply a sterile dry dressing to protect the wound from contamination. Provide shock care. Obtain medical attention.

MINOR BURNS

The object of first aid for burns is to relieve pain, prevent contamination, and prevent shock. First degree and second degree burns should be submerged in cold water until the pain subsides. Gently blot dry then apply a sterile dry dressing as a protective bandage. Do not break blisters, or remove any tissue. Do not use an antiseptic preparation, ointment or spray. Seek medical attention immediately if burns are severe.

EYE INJURIES

Foreign objects are often blown or rubbed into the eyes. Keep victim from rubbing eye. Wash hands before examining eye. Do not attempt to remove foreign objects by inserting toothpicks, or other instruments. If object is embedded in eye, seek medical attention immediately. If object is not embedded try to remove by teardrops, or flushing with water. If object is not easily removed, seek medical attention.

Contusions may be caused by direct blow or explosion. Stop hemorrhage by gently applying direct pressure, then protect eye from contamination with a dry sterile dressing. Seek medical attention immediately.

GENERAL SEQUENCE FOR TREA TMENT OF EXPOSURES TO UNKNOW IN CHEMICALS

- 1. Quickly protect yourself from exposure before attempting to rescue the victim.
- 2. Decontaminate the victim and term i nate exposure.
- 3. Treat cessation of breathing first.
- 4. If the heart is not beating, perform cardiop ulmonary resuscitation (CPR).
- 5. Treat eye injuries next.
- 6. Treat skin contact.
- 7. Treat shock.
- 8. Call for help.

PRELIMINARY ASSESSMENT

Make a quick assessment of the likely routes Of exposure by examining the eyes, mouth, nose and skin of the victim for signs Of the chemical itself or damage it has caused such as swelling, redness, bleeding, burns, discharge of fluid or mucous or pallor.

Drooling, difficult swallowing, a distended and painful or hard, rigid abdomen all indicate possible ingestion of a corrosive or caustic substance.

If respirations are rapid, shallow, noisy or labored, suspect inhalation.

If the face has been splashed with chemical, eye contact is likely.

POISONING BY INHALATION

Remove the victim from exposure while protecting yourself from exposure.

If breathing has stopped, administer artificial resuscitation using a disposable resuscitator and avoid mouth-to-mouth contact. **DO NOT** use mouth-to-mouth resuscitation if the nature of the chemical exposure is unknown.

Site Safety Plan

March 1994

Page 1-2 Phibro-Tech, Inc., Joliet, Illinois

Maintain an open airway.

Notify an emergency medical service of the nature of the accident and arrange for transport to a medical facility.

POISONING BY INGESTION

Remove the victim from exposure while protecting yourself from exposure.

Call a poison control center, emergency room or physician for advice.

Notify an emergency medical service of the nature of the accident and arrange for transport to a medical facility.

Consult the MSDS to determine whether to offer victim water to drink or to induce vomiting and by what means.

If the victim is conscious:

- Have the victim rinse out mouth with water.
- If there are no signs of burns, swallowing difficulty or abdominal problems and victim is conscious and if so advised by a physician or poison control center:
 - Induce vomiting by giving two teaspoons of Syrup of Ipecac. Follow with at least one cup of water. **DO NOT** use milk. If you do not have Syrup of Ipecac, induce vomiting by asking the victim to touch the back of the throat with a finger, spoon handle or blunt instrument.
 - · Have the victim sit up or lean forward while vomiting.
 - Save any vomitus and give it to the emergency medical service personnel to take to the medical facility for analysis.
 - Give the victim one to two cups of water to drink after vomiting has ceased.
- Keep talking to the victim to prevent sleepiness.

If the victim is unconscious:

- Lay the victim on the victim's left side, bending the victim's right hip.
- Maintain an open airway.
- Arrange for transport to the nearest medical facility.
- Stand by to administer artificial resuscitation and CPR if needed. Be sure
 to wipe or rinse all traces of chemical from in and around the victim's
 mouth before giving artificial resuscitation. Always use disposable
 resuscitators supplied in the Warzyn First Aid kits when performing CPR.
 DO NOT use mouth-to-mouth resuscitation if the nature of the chemical
 exposure is unknown.
- If breathing has stopped, administer artificial resuscitation using a disposable resuscitator and avoid mouth-to-mouth contact.

If the victim vomits, save the vomitus and send it to the medical facility for analysis.

If the victim shows signs of shock (a weak, rapid pulse; pale clammy skin; cold hands and feet), elevate the victim's feet eight to twelve inches and cover the victim with a blanket.

DO NOT give an unconscious person anything to drink.

DO NOT give someone who is convulsing anything to drink.

POISONING BY SKIN CONTACT

Remove the victim from the contaminated area, being careful to protect your lungs, skin and eyes.

Remove the victim's clothing, shoes and jewelry from the affected areas, cutting them off if necessary. Do this under a shower or while flushing with water.

Continue to flush with water until all trace of the chemical is gone and any slippery feeling has disappeared also. Rinse for at least 15 minutes.

Cover the victim with a blanket or dry clothing.

Notify a physician, emergency room or poison control center of the accident and obtain advice.

Site Safety Plan

In case of inflammation, burns, blisters or pain:

- Loosely apply a dry sterile dressing, if available, or use a clean dry cloth.
- Notify an emergency medical service of the nature of the accident and arrange for transport to a medical facility.
- If the victim is in a state of shock:
 - Lay the victim down on the victim's side and cover the victim with a blanket.
 - Elevate the victim's feet eight to twelve inches.
 - Notify an emergency medical service of the nature of the accident and arrange for transport to a medical facility.

DO NOT break open blisters or remove skin. If clothing is stuck to the skin after flushing with water, do not remove it.

DO NOT rub or apply pressure to the affected area.

DO NOT apply any oily substance to the affected skin.

DO NOT use hot water.

POISONING BY EYE CONTACT

Remove the victim from the contaminated area, being careful to protect your lungs, skin and eyes.

Act quickly. Seconds count. Flush the victim's eye(s) with clean tepid water for at least 15 minutes. Have the victim lie or sit down and tilt head back. Hold eyelid(s) open and pour water slowly over the eyeball(s) starting at the inner corners by the nose and letting the water run out of the outer corners. The victim may be in great pain and want to keep eyes closed or rub them but you must rinse the chemical out of the eye(s) in order to prevent possible permanent damage.

Ask the victim to look up, down and side to side as you rinse.

Call an emergency medical service and arrange for transport to the nearest facility for examination and treatment as soon as possible. Even if there is no pain and vision is good, a physician should examine the eye(s) since delayed damage may occur.

If the eye(s) is(are) painful:

- Cover loosely with gauze or a clean, dry cloth
- Maintain verbal and physical contact with the victim

HYDROGEN CYANIDE EXPOSURE

Hydrogen cyanide is a Class A poison which can cause asphyxiation by ingestion, inhalation, or absorption of liquid or vapor through the skin (particularly eyes, mucous membranes, and feet). Hydrogen cyanide has a bitter almond odor and has a threshold limit value-ceiling-TLV-C of 10 ppm.

The SSO will notify the local medical facility if the potential for hydrogen cyanide exposure exists at the Site. This will allow emergency personnel to have the necessary equipment in the event of a cyanide exposure emergency.

Signs and Symptoms of Exposure

Inhalation

Very acute poisoning

- Victim cries out before losing consciousness
- · Victim falls to the ground
- Wheezing
- Foaming at mouth
- Violent convulsions
- Almost immediate death

Acute poisoning

- Excitement phase
 - Headache
 - · Breath smells of bitter almond
 - Dizziness
 - Nausea, occasionally vomiting
 - Rapid breathing
 - Anxiety and excitement

- Depression phase
 - Difficulty in breathing
 - Chest pain
 - Drowsiness
- · Convulsion phase
 - Convulsions
 - · Jaws clenched together
 - Foaming at mouth
 - Loss of consciousness
- Paralysis phase: If the subject survives, there is a risk of permanent nervous system damage.
 - Deep coma
 - Dilated pupils
 - · Weak and irregular pulse
 - Breathing stops
 - Death

Slight poisoning

- Headache
- Dizziness
- Anxiety
- Difficulty in breathing

Ingestion

(See symptoms described under <u>Inhalation - Acute to slight poisoning</u>)

Burning tongue and mouth

Salivation

Nausea

Skin contact

The gaseous and liquid compounds are quickly absorbed by the skin and cause symptoms described under INHALATION, resulting in acute to slight poisoning. Depending on their nature, they can be very or only slightly irritating.

Splashing in eyes

Irritation and watering of eyes

When absorbed by mucous membranes of the eyes, these compounds can cause the same symptoms described in INHALATION, resulting in slight poisoning.

First Aid

Inhalation

Remove the victim from the contaminated area only after protecting yourself from exposure.

Have someone call the Emergency Medical Service and arrange for transport to a medical facility. Inform them of the nature of the exposure.

Remove contaminated clothing and equipment while wearing appropriate protective clothing.

If the victim has stopped breathing:

- Open airway, loosen collar and belt. Do not use direct mouth-to-mouth resuscitation for cyanide exposure. A bag-valve mask is required.
- Check the pulse.
- Continue your efforts until help arrives or the victim starts to breathe on their own.
- · Keep the victim warm and quiet.

If the victim is unconscious but breathing:

- Lay the victim on their back. If the victim is vomiting, turn the head to the side.
- Clear the airway and loosen tight clothing.
- Keep victim warm and quiet.
- Do not leave the victim unattended.
- Never give an unconscious person anything to drink.

If the victim is conscious:

- Lay the victim down, cover the victim with a blanket and keep them quiet.
- Loosen tight clothing.

Ingestion

Start lifesaving treatment, call for help and, if possible, empty the stomach and prevent further injury caused by absorption. PROMPT TREATMENT IS LIFESAVING.

- Ask someone to call a poison control center, inform them of the chemical swallowed and follow their advice.
- Ask someone to call the Emergency Medical Service and arrange for transport to a medical facility.

If the victim is unconscious or unresponsive:

- Lay the victim on the left side and loosen the victim's collar and belt.
- · Check the airway for obstruction.

If the victim stops breathing, administer artificial respiration using a bag-valve mask. Do not use direct mouth-to-mouth resuscitation.

If the victim is conscious and alert:

- Remove the victim from the contaminated area to a quiet, well ventilated area.
- Loosen tight clothing around the neck and waist.
- Have the victim rinse mouth several times with cold water and spit out.
- Give him 1 or 2 cups of water or milk to drink.
- Induce vomiting by touching the back of the throat with your finger, a spoon handle or a blunt object.
- Have the victim sit up and lean forward while vomiting.
- Save vomitus for analysis later. Avoid skin contact with it.

Do not leave the victim alone.

DO NOT give an unconscious person or a person who is having a convulsion anything to drink. **DO NOT** give alcohol, drugs, or stimulants like tea or coffee. **DO NOT** continue to try to induce vomiting in someone who doesn't gag when you touch the back of his throat.

Skin contact

Remove the victim from the source of contamination and take them IMMEDIATELY to the nearest shower or source of clean water. Remove clothing, shoes, socks and jewelry from the affected areas as quickly as possible, cutting them off if necessary. Be careful not to get any of the chemical on your skin or clothing. Wash the affected area under tepid running water using a mild soap. Thoroughly rinse the affected area with tepid water. Dry the skin gently with a clean, soft towel. Notify a physician, emergency room, or poison control center and inform them of the nature of the substance and the accident. Arrange for transport to the nearest medical facility. Do not leave the victim alone. Watch for signs of systemic toxicity.

If the skin is inflamed or painful, put the painful part in cold water or apply cold wet dressings on the burned area.

Eve contact

Remove all the chemical from the eye(s) quickly. Remove the victim from the source of contamination and take them to the nearest eye wash, shower, or other source of clean water. Gently rinse the affected eye(s) with clean, lukewarm water for at least 15 minutes. Have the victim lie or sit down and tilt their head back. Hold the eyelid(s) open and pour water slowly over the eyeball(s) at the inner corners, letting the water run out the outer corners. Ask the victim to look up, down and side to side as you rinse in order to better reach all parts of the eye(s). Have the victim remove contact lenses if they are wearing them. Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible. Tell the Emergency Medical Service personnel the name of the chemical and the nature of the accident. Even if there is no pain and vision is good, a physician should still examine the eye(s) since delayed damage may occur. If the victim cannot tolerate light, protect the eye(s) with a clean, loosely tied handkerchief or strip of clean, soft cloth or bandage. Be sure to maintain verbal communication and physical contact with the victim.

DO NOT let the victim rub eye(s). **DO NOT** let the victim keep eyes tightly shut. **DO NOT** introduce oil or ointment into the eye(s) without medical advice. **DO NOT** use hot water.

In all instances when performing First Aid procedures personnel should follow guidelines for Bloodborne Pathogens. Use the PPE - gloves, disposable mouth-to-mouth resuscitators, safety goggles and overgarments supplied in Warzyn First Aid kits. Report all First Aid incidents to the Health and Safety Manager immediately.

(Z)Z

D

D Quality Assurance Plan

APPENDIX D

QUALITY ASSURANCE PLAN

This Quality Assurance Plan will describe how procedures, sampling, field measurements, and sample analysis will be performed during the investigation so that information, data, and resulting interpretations are sound and properly documented.

Field Measurements/Monitoring

Field measurements such as temperature and pH, field personnel present, notes pertaining to site activities, etc. will be recorded each day. Instruments used to measure environmental data will be calibrated with sufficient frequency and in such a manner that accuracy and reproducability of results are consistent with the manufacturer's specifications.

Sampling

Sampling will be performed in accordance with approved ASTM methods for split-spoon sampling. Samples will be continuously screened for the visual presence of contamination and measured for pH. The sample from each boring which shows the highest level of contamination will be submitted for laboratory analysis.

Quality Assurance for Measurement Data

Duplicate samples will be taken once every ten samples for quality control to assess the quality of data resulting from the field sampling program, including analytical reproducability.

Analytical Methods

The procedures used to collect, handle, preserve, prepare, and chemically analyze all required samples will follow guidance in U.S. EPA's SW-846, "Test Methods for Evaluating Solid Waste". This includes the use of contaminant-free sample containers which were prepared consistent with the procedures specified by the U.S. EPA. Additionally, quality assurance/quality control procedures will be implemented for all sampling/analysis efforts which meet the requirements of SW-846.

Data Reduction and Validation

Data reduction of inorganic data will follow the requirements set forth in SW-846.



E DATA MANAGEMENT PLAN

APPENDIX E

DATA MANAGEMENT PLAN

This Data Management Plan describes the program for management of data and information collected during the RFI at the Phibro-Tech, Inc. (Phibro-Tech) facility. The plan discusses the disposition of data and special data handling procedures.

Field Measurements and Observations

Field measurements and observations will be directly recorded in the field logbook and on field record forms and entries will be signed and dated. The logbook will document the date, weather conditions, site activities, and personnel on site. Soil boring logs will be generated from field observations taken during drilling.

Sample Identification

Field samples will be uniquely labelled with the following information: date and time of collection, sample location, name of the sample collector, and other pertinent remarks.

Chain-of-Custody Procedures

A chain-of-custody form will be completed in duplicate using carbonless duplicate forms and will contain the information recorded on the labels on the sample jars. The original form will be included in the shipping cooler, a duplicate will be maintained for the project files. The shipping cooler will be secured with strapping tape and custody seals will be placed across the cooler opening to ensure sample integrity during shipment.

Laboratory Documentation

Laboratory records will document sample receipt dates, laboratory analysis dates, and report dates. After quality assurance review, the results will be forwarded to Warzyn.

Document Control, Inventory, and Filing

Originals of all data will be secured in the project files, copies of original data will be maintained only by those personnel using the data during analysis procedures.

Much of the laboratory results will be stored in a computer data base file system. The system has an established backup system to preserve data security and integrity. Upon completion of the project, the IEPA Project Representative will

be contacted and offered the option of transferring the files to the IEPA prior to closing.

PROJECT TRACKING

A draft RFI report will be prepared presenting the results and data from the Phase I investigation. The report will document the presence of absence of contamination in each of the nine SWMUs. A final report will be prepared which will include the collected data presented in tabular form and on figures and the boring logs and field notes. The final report will address Agency comments.

KAW/jrs/MJH [chi rpt 99] 6126200